Public Health Implications of AB 32 Alternative Mitigation Policy Proposals Submitted to the Air Resources Board || Amy D. Kyle || December 8, 2008

Thank you for the opportunity to comment on the October draft of the Scoping Plan for the California Global Warming Solutions Act of 2006. It is critically important to reduce greenhouse emissions and build a clean and sustainable energy system that can support the economy without destroying the global environment. I deeply appreciate the diligent efforts of the staff to address these complex issues.

The plan represents a portfolio of policy proposals. My focus is on assessment of their public health implications. The October revision reflects greater recognition of the importance of engaging the public and coordinating efforts with local governments, especially on issues related to the built environment, land use, and transportation and their implications. These are important improvements.

What the Air Resources Board still needs to do is to discuss the relative merits of the available policy alternatives. Alternatives under consideration would be expected to vary with regard to their public health impacts. Consideration of the differences in public health impacts would inform the Board's deliberations. Moreover, public health benefits also have economic benefits that would be relevant to selection of cost effective measures.

Some reasons that alternatives might differ in their public health impacts are:

- Actions that reduce CO_2 emissions but retain combustion technologies will generally have fewer public health benefits than those that eliminate combustion and resulting co-pollutants.
- Actions that reduce combustion or invest in clean and sustainable technologies or create other environmental benefits in proximity to populations, particularly vulnerable populations and communities, will have greater public health benefits than those that do not.
- Actions that build clean and sustainable energy infrastructure and energy security for communities will have greater public health benefits than those that merely reduce emissions.
- Actions that reduce greenhouse emissions by improvements to the built environment can also address important environmentally mediated conditions such as diabetes and obesity so would have public health benefits beyond reductions in air pollution.
- Actions that enhance the ability of the public to participate and contribute to solutions are more likely to reflect the public interest and so promote public health than those that do not.

If the Board is going to adopt the policy strategies as presented, it might consider commissioning a comparative review of the public health and overall public benefits of policy alternatives to be completed before regulations are adopted. In addition, the Board may wish to consider directing the staff to set up means to track the implementation of policy measures to allow on-going, objective determination of whether the strategies are achieving the policy aims of the statute.

The State of California is critical to the development of a just and sustainable model for how to address climate change and lead a conversion to a new energy system. As Governor Schwarzenegger points out, California leads the world. The best model California could present would reduce emissions while promoting public health, democracy, and civic engagement; protect and enhance vulnerable communities; and build the clean and sustainable energy system that we need for the future.

Thank you for your consideration of these comments. Details are in the attachment.

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Part One: Review of the October 2008 Draft of the AB 32 Scoping Plan

1. The ARB Should Evaluate Relative Public Health Impacts of Alternative Measures

As noted, the scoping plan does not consider the relative merits of the alternative actions proposed. There are several reasons why different approaches might have different public health impacts. The Board will apparently not consider these differences in making its decision about the Scoping Plan. The scoping plan defers full consideration of public health impacts to the implementation phase, in the development of regulatory proposals. At that point, it will no longer be possible to compare public health impacts among alternatives, but only for each option selected.

Some of the reasons that we would expect that different policy alternatives may have different public health effects are listed below.

- **<u>Co-pollutants</u> -- Actions that reduce CO_2 emissions but retain combustion technologies will generally have fewer public health benefits than those that eliminate combustion and resulting co-pollutants.**

  Actions can be compared in terms of their applicability to emissions other than CO_2. Many sources of CO2 are related to combustion and so have other emissions. It would be possible to scope out the likely differences between strategies that eliminate or reduce CO_2 emissions but retain combustion and so continue to result in emissions of other pollutants, such as use of low carbon fuels compared to actions that use technologies other than combustion and eliminate emissions. Other possible impacts would need to be considered as well. The health benefits from eliminating or reducing co-pollutants could be important and should be considered in looking at cost effectiveness of actions.

- **<u>Proximity</u> -- Actions that reduce combustion or invest in clean and sustainable technologies or create other environmental benefits in proximity to populations, particularly vulnerable populations and communities, will have greater public health benefits than those that do not.**

  Public health impacts of actions also vary with their proximity of impact for affected populations. Actions that reduce pollution and provide positive amenities for vulnerable populations would likely create the most public health benefit. To design regulatory strategies and market mechanisms that can maximize public health benefits, targeting toward vulnerable communities and populations would be best. Creating polices that allow public health benefits from pollution reduction and positive environmental amenities and energy security to leak away from vulnerable communities and populations would be worse.

  The question of cumulative impacts is relevant here. What policies would reduce cumulative impacts? What policies might increase cumulative impacts?

  Both the "trading" part of cap and trade and offsets would likely fall in this latter category. If such approaches are indeed adapted, some additional mitigation would seem to be essential to address the requirements of AB 32.

- **<u>Build the New or Fix the Old</u> -- Actions that build clean and sustainable energy infrastructure and energy security for communities will have greater public health benefits than those that merely reduce emissions.**

  Perhaps a more subtle point is that the composition of the policy portfolio will determine where money will be spent. Will money be spent on improved technologies for pollution control or for clean and sustainable energy systems?

In general, we might expect investment in new technologies for a clean and sustainable energy system to have greater long-term public health benefits because they might also be expected to: (a) reduce employment in unsafe jobs and practices associated with fossil fuel extraction, transportation, and use; (b) eliminate co-pollutant emissions from combustion practices that are replaced by new energy sources; (c) provide public health benefits by bringing greater energy security to California communities; (d) provide public health benefits through employment in stable, green jobs. There are a number of considerations, but this should be assessed.

The theory behind cap and trade is that those who have greenhouse emissions and face caps will make decision about reducing emissions or purchasing allowances to preserve emissions that reflect the lowest costs for control of pollution or costs of energy (in cases where alternative energy sources are cheaper than pollution control.) This would be expected to be true in the absence of other strategic goals on the part of the holders of allowances. (Such other goals could include price manipulation, market share, or other institutional or competitive goals.) The investments could extend beyond investments in pollution control to investments in cleaner energy sources with lower levels of greenhouse missions, if the costs of these sources are lower than the costs of pollution control. The theory of cap and trade does not, however, suggest that any emitter will consider the relative public health benefits in making these decisions.

Suppose that one option is to invest in, say, carbon sequestration as a pollution control method. This would not be expected to have public health benefits because it does not control co-pollutants or offer increased energy security. In addition, the long-term effectiveness of the method appears to be in question. Plus, it assumes the continued combustion of fuels as an energy source, imposing costs on consumers.

Suppose that another option available to the emitter would be to pay an additional 10% but instead invest in clean, sustainable, and renewable energy technology that would eliminate the need for control of emissions, get rid of the release of co-pollutants, offer lower risk of catastrophic failure, and create energy security and green jobs.

While the latter option would be clearly preferable from a public policy point of view, it would not necessarily be more economically efficient (i. e. preferable) from the point of view of the emitter because the additional benefits beyond pollution control would accrue to others, not the emitter.

The theories that support cap and trade are concerned only with the economic efficiency of pollution control and so would predict that the emitter would choose the pollution control option, even if another option that would be in the greater public interest and would be more cost effective if the health benefits were taken into account. The interests of the emitter are not necessarily those of the public (or the people who are paying the higher prices for energy that come about as a result of the cap).

The question of how different economic incentives affect investment in innovation should be analyzed and considered in the assessment of alternative approaches. Public health benefits likely to accrue from investment in clean and sustainable energy systems should be counted when considering cost effectiveness.

The scoping plan does not comment on the appropriate balance of investment between fixing old technologies and creating new technologies nor assess the relative public health benefits of these paths. That plan does not compare and value the public health benefits that accrue to investing in clean and sustainable energy as compared to trying to

control emissions from the fossil fuel energy system. These benefits might be considerable and would extend beyond reductions in PM-related mortality.

Some argue that the money raised through the pollution control market incentives can then be invested to achieve such broader goals, and this is true. But this is a secondary route, significant investment is likely to go into pollution control approaches, and this could take a long time.

- **<u>Multiple Benefits from Built Environment Investments</u> -- Actions that reduce greenhouse emissions by improvements to the built environment can have multiple health benefits for important conditions such as diabetes and obesity.**

  In general, we might expect that investments in the built environment that reduce the need for energy use would produce public health benefits from decreased need for expenditures on energy and reduced exposure to combustion byproducts. We might expect that changes to communities to reduce vehicle miles traveled might produce health benefits from greater walkability and social cohesion. [1] Also, enhancements to community design can contribute to increased rates of exercise and other positive elements for health beyond reductions in air pollution. Such public health implications could be assessed.

- **<u>Enhance Public Interest</u> -- Actions that enhance the ability of the public to participate and contribute to solutions are more likely to reflect the public interest and so promote public health than those that do not.**

2. Public Health Assessment Should be Broader and Appropriate to a "Scoping" Process

The Scoping Plan analyzes public health impacts of the proposed strategies in terms of the health benefits that would accrue from reductions in emissions of particulate matter (PM) projected to accompany reductions in greenhouse emissions mandated in the plan. The analysis of this issue is quite good and represents the staff's considerable expertise. It shows significant benefits.

However, there are other issues that should also be addressed. One that is pointed out in the plan itself is the benefit from reduction in ozone. Improvements to the built environment, both in terms of indoor environmental quality, and community design and transportation can increase propensity to exercise, for example, which can create public health benefits. Development of local food systems in conjunction with a focus on community energy flows can improve the quality of foods available. The issues identified in the previous section can be identified.

What is most appropriate in a scoping document is to understand the major shape of the choices facing the policy makers. The public health assessment is too narrowly focused to achieve this.

3. The Rationale for the Selection of "Cap and Trade" Should Reflect the Issues at Hand

The rationale that has been presented for the selection of "cap and trade" as the market mechanism for the California program is largely based on the use of "cap and trade" to reduce SO_2 emissions for about 300 coal fired power plants, under federal auspices. Some disagree that this was successful, but let's assume that it was. The rationale should be cognizant of the differences between

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[1] This point is mentioned but not included in the public health assessment results, at H-100 to 101, California Air Resources Board for the State of California. Appendix Volume I. Appendix H. Environmental and Public Health Assessment

these cases. The SO_2 case is more different from the current situation than similar. It involved merely a few hundred actors, not the millions that will need to take action to address greenhouse gas emissions. It involved only one kind of source, rather than hundreds of thousands. It involved only one pollutant, rather than several. It required no change in public behavior, rather than a transformation of public behavior. It required adding controls to existing facilities, rather than investment in entirely new technologies and infrastructure. It is generally recognized as not contributing to significant technological innovation, clearly essential in this case.

A fair analogy might be to argue that because you can ride your bike to the Safeway you can also ride it to the moon. One might also view the SO_2 case as cautionary because it resulted in prolonging the use of a technology that contributes to climate change.

4. The Plan Overstates the Likelihood of Achieving all Elements of the SIP and so Undervalues Possible Public Health Gains

The public health assessment, narrow as it is, assumes that all elements of the State Implementation Plan for air quality will be implemented effectively and achieve the projected improvements in air quality. However, history would suggest that this may not be the case. The writing of a SIP has not, in the past, guaranteed that the proposed elements will be adopted or that, if they are, that they will be as successful as planned. So, it would seem that taking all of these actions as given and attributing only reductions beyond those to implementation of AB 32, rather than looking at these mechanisms as being complementary and likely, together, to contribute to better outcomes, does not seem to be the most appropriate approach.

5. Given the Highly Uncertain Nature of the Future, ARB Should Consider How to Minimize Risk of Systematic Failure.

Everyone is aware of how far from predictions the electricity deregulation process in California went, as a result of unpredicted incentives on the part of energy traders, and result in extreme price fluctuations and system failure.

Everyone is also aware of the current state of the US economy as a result of unscrupulous actions by traders in unregulated and out of control markets in financial instruments.

It would seem to be quite important for the ARB to analyze which options might be most verifiable, manageable, and capable of correction in the event that things do not turn out as projected.

6. The ARB Should Consider Availability of Resources for Mitigating Impacts on Vulnerable Communities (including impacts of climate change)

Whatever approach is taken, resources will be needed to air in adaptation of vulnerable populations and communities. This is important to public health and not currently addressed at all in the scoping plan. Moreover, resources to ensure that vulnerable communities are not harmed through the mitigation policies should be identified.

Remedies

I have been told that the ARB will adopt the proposed strategies without considering relative merits of alternative approaches.

If this is the case, then the ARB may wish to commission a comparative assessment comparative review of the public health and overall public benefits of policy alternatives to be developed in the next two years and considered before implementing regulations are adopted.

In addition, the Board may wish to consider directing the staff to set up means to track the implementation of policy measures to allow objective determination of whether the strategies are achieving the policy aims of the statute. Development of regulatory proposals should include design of management and measurement capacity to allow the Board and the people of the State to understand what is happening in the implementation of the portfolio of policies.

Some of the metrics that would provide relevant information would include

- reductions in greenhouse emissions and co pollutants;
- CO_2 emissions that remain, the co-pollutants that continue, and the health benefits that are achieved or foregone;
- metrics for investment in pollution control, where they are occurring, and the extent that co-benefits are achieved;
- the balance of investment in CO_2 pollution control compared to investments in remedies to reduce energy use;
- metrics related to community design/planning/land use/transportation;
- identification of where reductions are not occurring as a result of "trading" or offsets;
- relative investment in retrofit of fossil fuel based technologies compared to investment in clean and sustainable technologies and systems;
- environmental impact on California communities;
- where growth in jobs created as a result of this system is occurring;
- energy security of California communities;
- levels of public participation and civic engagement; and
- how state measures are interacting with local initiatives.

The ARB will need to identify expertise to assess the relative public health benefits and other benefits to the people of the state along these competing trajectories. The ARB could then use this to periodically reassess whether the program is achieving the interim steps expected and contributing toward the policy goals laid out in the statute.

It would be informative to the decision for the ARB to address questions like these as it moves forward:

a. How do the public health benefits of investments in new technologies and systems compare to investments in pollution control technologies and systems for greenhouse emissions? What is the most beneficial balance between investments in pollution control technologies (such as a low carbon fuel standard) compared to investment in clean and sustainable energy technologies?

b. How do public health benefits from investments in greener buildings and communities compare to investments in pollution control technologies?

c. What structure of economic incentives would generate the most optimal degree of investment in a clean and sustainable energy system?

d. Would we expect current emitters of greenhouse gases and the subsequent holders of emission allowances to consider public health benefits when making decisions about expenditures to reduce emissions? If not, what are the implications of this?

e. How do we consider the health benefits in considering what are cost effective options?

f. What options are most likely to be successful and what options are likely to be most amenable to correction if events do not go as we expect?

Part Two: Comments on the Public Health Analysis and CEQA Analysis

The public health assessment for the Scoping Plan is contained in Appendix H. [2] A discussion of public health and environmental impacts for the Scoping Plan is in Appendix J, [3] a document that is intended to address requirements for environmental review under the California Environmental Quality Act.

Public Health Assessment

The public health assessment in Appendix H focuses on estimating reductions in emissions of air pollutants projected to result from the actions identified in the Scoping Plan. The Scoping Plan focuses on reductions that would be anticipated to be in addition to those projected to occur as a result of actions taken pursuant to the 2007 State Implementation Plan (SIP). This may under-estimate the true benefits of actions taken under the Scoping Plan, since implementation of such actions would increase the likelihood that the reductions identified in the SIP would be achieved. History would suggest that all elements of SIPs are not necessarily implemented to the degree projected at the outset. As noted previously, only the health benefits from projected reductions in emissions of PM2.5 are quantified for most parts of the analysis, though reductions for other pollutants are estimated. Public health benefits arise from the replacement of combustion with other energy sources.

CEQA Equivalent Document

The CEQA equivalent analysis considers the wide array of issues pertinent to CEQA and is organized according to major elements of CEQA. The overall purpose of CEQA is to consider alternatives with regard to environmental and health impacts.

The CEQA document also states that the assessment of the statutory criteria from AB 32 related to maximizing benefits to the people of the state, ensuring that cumulative impacts are not worsened, and so on, will be deferred to the development of the regulations for individual measures. This seems odd in two respects. First, it is not clear why the statutory requirements from AB 32 are addressed in the CEQA document. They are not part of CEQA. Second, the capacity to compare different alternative approaches is lost once a set of alternatives is selected to be implemented. Surely, it makes more sense to determine which set of policies is most likely to yield the greatest net benefits to the people of the state and avoid cumulative impacts while all options are still in play. How this can be done for individual options, at the time of rule-making, is not clear.

In the discussion of air quality impacts, some assertions seem unlikely. On pages J-25 to J-26, the draft says that the implementation of the cap and trade program is likely to increase reductions in air pollutants in California compared to other options. The logic for this is not apparent. Since the cap and trade program, as explained to date, would allow emitters to purchase allowances to continue their emissions, rather than to reduce them, the "trade" part of cap and trade would be inclined to reduce health benefits compared to other kinds of incentives that do not allow for trading and for offsets that may be to areas out of the state or out of the country.

The document does acknowledge the potential releases of both toxic and criteria pollutants in association with the infrastructure for and use of biofuels and notes that these need to be addressed, at page J-30.

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[2] California Air Resources Board for the State of California. 2008. Climate Change Proposed Scoping Plan Appendices. Volume II: Analysis and Documentation. October 2008.

[3] California Air Resources Board for the State of California. 2008. Climate Change Proposed Scoping Plan Appendices. Volume III. California Environmental Quality Act Functional Equivalent Document. Appendix J. 118 pages. October 2008.

Environmental Justice Analysis

The analysis of environmental justice (page J-69 to J-71) discusses the process used to elicit public comments from impacted communities. It then notes that AB 32 requires that the ARB must consider several issues before it selects any market-based mechanism. These issues include the potential for "direct, indirect, and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely affected by air pollution." It also notes that any such program must be designed to "prevent any increase in the emissions of toxic air contaminants or criteria air pollutants" and to "maximize additional environmental and economic benefits for California."

However, the document notes that this has not been done and would be done only after the adoption of the Scoping Plan. It is hard to see how this is consistent with the statute.

This analysis does not acknowledge that the implementation of the "trade" part of cap and trade and use of offsets can and likely will contribute to continued patterns of disproportionate impacts in certain communities. This is because emitters in such communities will have the opportunity to buy allowances or offsets instead of reducing emissions. The "trade" part of cap and trade imposes no geographic constraints over where reductions occur or where emissions continue. Emission reductions may be made out of the state, if allowances are to be traded to other states, or even out of the country, if broad provisions for "offsets" are allowed. It is also not certain whether such reductions would occur, and it would be outside the legal capacity of the State of California to ensure that they did. So, cap and trade rules do not address concerns about environmental justice or cumulative impacts.

Instead, ARB proposes to initiate a stakeholder process after the cap and trade measure is adopted to address this concern. Since the concern is structural, it would not seem to be amenable to being addressed through a stakeholder process.

Assessment of Alternatives

The document has perhaps its greatest limitations in its discussion of alternatives. This discussion of the proposed alternatives is quite short, occupying fewer than ten pages (p. J-84 ff).

The document reviews the key elements of a "business as usual" or "no action" alternative to the scoping plan. It correctly states that the elements proposed in the Scoping Plan would lead to greater greenhouse reductions than "business as usual."

The document then makes the assertion that the mix of strategies that could be implemented would all have approximately the same outcome. It further asserts that the alternatives could not be assessed until regulations, which are more detailed, are developed. This reinforces the critical limitation of this Scoping Plan, which is that it fails to discuss even the major parameters of different implications of the options before the ARB. In any case, this section of the CEQA document does not address public health impacts in a complete way.

The option of a carbon fee is briefly mentioned but dismissed with the assertion that it does not provide the certainty of reductions that would be gained from the cap and trade program. However, the analysis does not include any cap with the fee. It would seem that the same critique could be offered of a "trade only" option if that were offered. It also would provide greater economic efficiency without any assurance that the overall target could be reached. It would be a more meaningful analysis to compare the use of the economic incentive of a fee with a cap to the use of the economic incentive of trading with a cap.

It notes that California needs to achieve greater efficiency in all sectors (at J-85). What it does not do is to analyze which alternatives are most likely to contribute to this result. It notes (at J-86) that prices likely to result from a cap and trade scenario are unpredictable and that allowing out of state offsets would likely decrease the activity toward emission control and cleaner energy in California, which would seem to be an unfavorable result.

This analysis compares the implementation of a cap under cap and trade to no action, rather than to other alternative approaches that might provide for emission reductions and also preclude their leakage out of California and its highly impacted communities.

Neither the CEQA document nor the main part of the Scoping Plan analyzes the value of including combustion sources such as the low carbon fuel standard or the use of biofuels, compared to the potential to move beyond the use of combustion sources to the degree possible. This would also be an issue worth analyzing. Also relevant is the proper relationship between the allocation of resources to reduce demand for energy and to build an energy system based on clean and sustainable sources and technologies compared to that to control emissions. This is a critical issue that would benefit from analysis in this element of the program as well as in the discussion of how economic incentives and market mechanisms will play out.

The key issue identified previously, i. e., who gains the resources that result from the higher price place on carbon and the implications of this for investment decisions, is not addressed. Would use of a carbon fee be likely to result in the same decisions at the end as a trading mechanism? Or not? We have no analysis or discussion of this.