



UNIVERSITY OF OREGON

To: CARB

From: Ronald Mitchell, Professor, Department of Political Science, University of Oregon

Re: Draft Scoping Plan

Date: Tuesday, September 02, 2008

I read the Draft AB32 Scoping Plan with interest and wanted to make a few suggestions as to how the implementation of that plan might be improved, largely by designing the program in ways that ensure that the effectiveness of the various strategies proposed in the plan can be rigorously evaluated over time. The value of evaluating those elements of the program over time stems from the ability to adapt strategies in response to information about the relative effectiveness of those strategies (by canceling ineffective strategies, altering other strategies, and adding new strategies to the policy portfolio in use).

Evaluating climate change impacts, policies, and progress

The State of California has initiated and committed itself to developing policy measures to reduce greenhouse gas (GHG) emissions by individuals, companies, and government agencies in California. Lawmakers and the public will want policies to be effective at reducing GHG emissions while being consistent with other economic, social, and political objectives. Yet, precisely because efforts to manage GHG emissions are novel, the "best" policies cannot currently be identified. To be sure, careful preparatory analyses that take advantage of logic, modeling, and analogous policy experience can avoid the promulgation of foolish policies. Yet, at least three considerations -- the law of unintended consequences; shifts in economic, political, and social conditions when policies are kept in place long after they are designed; and the chance that risky "untried" policies may, in the event, prove quite effective -- suggest that policies adopted today necessarily will and should involve some degree of trial and error. Thus, effective long term management of California's GHG emissions will require effective and transparent monitoring, evaluation, and revision of existing GHG reduction policies. Effective policy will need to involve adaptive management that responds to new information about climate change and the policies undertaken to mitigate and adapt to it.

What should be monitored?

California's research community can effectively support policymakers in their efforts to regulate GHG emissions only through a comprehensive and coordinated effort to monitor California's concentrations and net emissions of GHGs as well as climate impacts, emission reduction policies as implemented, the behaviors targeted by those policies, and the other factors that influence both behaviors and emissions.

Monitoring GHG concentrations and net GHG emissions:

An atmospheric measurement network provides one crucial element in assessing California's efforts. Data from a network of monitoring stations, combined with careful modeling techniques, could allow relatively accurate estimation of net statewide GHG emissions. Adding more monitoring stations and systems to this "backbone" would allow identification of net emissions at regional scales, including specific urban areas (e.g., Los Angeles, San Francisco, San Diego, etc.), landfills, and important natural sources and sinks (e.g., forests, marshes, and agricultural areas). Monitoring systems could be designed to allow monitoring of smaller communities or commercial/industrial areas.

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Monitoring impacts:

Although the policies and behaviors of Californians will have little influence on the impacts of climate change in California, keeping track of those impacts will be a central concern of both policymakers and the public and may make a big difference in the importance and attention that those actors pay to climate change. Equally important, tracking sea level rise, snowpack levels, precipitation patterns, species migration and loss, and other indicators of climate change will be crucial to policymakers to ensure that policymakers have adequate, appropriate, and timely information to take action to adapt to and avert such impacts. Thus, monitoring trends in sea level rise will be crucial to devising programs to relocate communities in low lying areas before inundation, salt intrusion, or storm surges and monitoring annual snow melt patterns will be crucial to initiate adaptation strategies early enough to forestall the most costly impacts of climate change (e.g., building additional dams and/or developing water conservation and efficiency programs).

Monitoring emission reduction policies:

Keeping track of emission reduction policies is likely to be both more complicated and more crucial than it first appears. At present, emission reduction policies that have the potential to influence the behavior of Californians have already been adopted at the international, national, state, municipal, corporate, and individual levels. Within the state alone, GHG reduction measures have been adopted by the state legislature, by several municipalities, and by several major corporations. Over the coming decades, many new GHG reduction policies will be adopted and current policies will be replaced or modified, at times in response to environmental concerns and at times in response to economic, political, or other non-environmental concerns. The ability to evaluate the track record of a particular policy requires comparing emissions by particular actors, sectors, or the state as a whole at a particular point in time to the policies that were in place for those actors, sectors, or the state at that same point in time. For example, domestic energy use in the future is likely to reflect the influence of state policies targeting a renewable energy portfolio, municipal construction standards regarding insulation, national appliance efficiency standards, and utility metering and energy conservation policies. It is easy to identify the current status of such policy influences on behavior but it would involve considerable effort (with only mixed results) to reconstruct accurately what those policy influences looked like five years ago, let alone twenty years ago. A systematic tracking of the status of such components over time will be necessary to accurately identify the reasons that different actors have altered their behavior.

Monitoring emissions-producing behaviors:

Calculating California's net GHG emissions by monitoring ambient GHG concentrations and fluxes (cross-border transport) provides information about the aggregate effects of all emission reduction policies in place during the relevant period. But most emission reduction policies will influence different sectors, industries, companies, households, and individuals differently. Most policies will target one group of emitters more than others, for example, focusing on industry or households, manufacturing or agriculture, large or small emitters, or mobile or stationary sources. Assessing such policies accurately requires detailed measurements or accurate methods for estimating the emissions from different sectors of, and actors in, the economy. Most commercial and residential energy use is already tracked, and has been for years, at the level of individual and corporate users. With appropriate precautions taken to protect individual privacy, patterns of energy use across different sectors (including transport) and different categories of users could be identified and changes in those patterns could be assessed to determine whether their causes are due to self-conscious policy efforts or other factors.

Monitoring non-policy influences on climate-related behaviors:

As the recent decline in miles driven in response to rising gasoline prices makes clear, emissions-producing behaviors may decline for reasons having nothing to do with self-conscious policy efforts. Accurately evaluating the effects of policies requires that such non-policy influences on behavior be accounted for before policy influence is inferred. A common method for evaluating policy influence involves statistical analyses designed to assess such influence on emissions behavior while "holding other factors constant." Accomplishing the goal of "holding other factors constant" requires that such analyses include data on those other factors, i.e., the other influences on

emissions behaviors. Thus, if it were 2015 and we wanted to assess the influence of efforts begun in 2005 to reduce transportation emissions, it would be helpful to have annual data on transportation emissions (from ambient monitors perhaps) as well as on gasoline consumed and miles driven, but also annual data on the average price of gasoline, characteristics of the car fleet, speed limits and enforcement policies, congestion levels, fog and ice events, and the many other influences on transportation emissions. Notably, it would be valuable to have data for all these variables beginning before 2005, to evaluate whether changes in emission levels occurred after the policy was adopted.

Monitoring other impacts of emissions reduction policies:

Precisely because emissions reduction policies are likely to involve costs for those actors that must change their behavior as well as others, they are likely to be politically controversial. The public will want, and has a right to, information about the direct economic costs of policies as well as the more general and diffuse impacts policies have on the economy (whether serving as an economic drag or stimulus). The public will also want to know how policies designed to reduce emissions will influence non-monetizable things such as how long it takes to drive to work; the distribution of agricultural, industrial, and residential land uses; differential effects of income on different socio-economic classes, etc. Keeping track of these and other salient non-environmental "performance indicators" of emissions policies, perhaps by working with stakeholders to identify them from the outset, ensures that interested actors have accurate information on non-environmental as well as environmental aspects of policies so that tradeoffs between these different concerns can be made with the benefit of solid empirical information.

Pilot studies, experiments, comparative cases, and baselines:

The gold standard in inferring the influence of policy interventions involves carefully controlled experiments in which the policies whose influence we seek to identify are applied to certain individuals, corporations, cities, or counties but are not applied to "control groups" of otherwise-comparable (or at least relatively similar) individuals, corporations, cities, or counties. Especially when policy interventions impose costs or promise benefits for those subject to them, undertaking such experiments can be politically difficult or impossible. Baselines also can be developed to estimate what would have happened in the absence of some policy intervention. The ability to identify a policy intervention's influence is crucial to ensuring that, over time, effective interventions are maintained and expanded and ineffective interventions are terminated. That ability, in turn, depends on designing policies from the outset to include experiments, comparable contexts, baselines, or other strategies that will allow them to be evaluated carefully and rigorously later on.

I hope these comments are helpful as you move forward on this important work and as you revise the AB32 Scoping Plan. Please feel free to contact me if you have any questions.

Sincerely,



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This communication reflects the personal views of the author and does not reflect an official communication of any sort from, or on behalf of, the University of Oregon.