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California Air Resources Board
1001 I Street
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Subject: Comments on *Climate Change Proposed Scoping Plan, October 2008*; Tracking and measuring progress

The *Climate Change Proposed scoping Plan, October 2008* describes a number of important steps to reducing California's greenhouse gas (GHG) emissions. While the proposal has many concrete and specific suggestions, we believe Section IV-D "Tracking and Measuring Progress," fails to appreciate the crucial nature of atmospheric observations while at the same time emphasizing methods for verification that can be largely described as "bottom-up" pencil and paper inventories. Unless remedied, this failure to emphasize will be a lost opportunity. California has the human capital to be the world leader in establishing the tools and procedures for observations that can both verify compliance with local and international greenhouse gas emission reduction regulations and evaluate the success of specific policies. Without these tools our leadership in greenhouse gas policy and green industry will be challenged. At present the scoping plan pays scant attention to observations, with a brief mention at the end of the third paragraph of section IV-D: "Continuous atmospheric monitoring of greenhouse gases may be useful for determining the effectiveness of emission reduction strategies and for future inventory development."

This unacceptable vague statement fails to anticipate the contributions that observations can and will make to our understanding of the effectiveness of greenhouse gas emission reduction strategies.

- A global scale GHG observing strategy exists that is adequate to detect changes on the hemispheric scale, but at present there is no observational basis for evaluating local or regional progress in response to specific policy objectives. In fact, current observations at such spatial scales target only electric power generation and cement production. Research into emission inventories capable of resolving cities, roads and individual power plants is just beginning. This research is building directly on emission inventories for CO, reactive organic gases and nitrogen oxides (NO_x) developed by the US EPA and related agencies. In the U.S. and in CA, these "bottom-up" inventories are more strongly tied to accounting metrics than to ambient air measurements and are similar to what is described in the tracking. Although these inventories are known to be inconsistent with observations of atmospheric CO and NO_x concentrations there is no established process for using observations to fix the inventories. As a result observations and models have been known to diverge for years without a correction [e.g. Parrish et al. 2002]. In California we have specific experience with diesel truck rules that shows us how observations diverging from inventories can confirm that a policy has not been as effective as intended.
- Bottom-up accounting metrics will never be widely trusted in isolation because of perception that they are subject to manipulation. Avoiding conflict between government units such as cities or local air quality districts in California over the extent to which policies have effected reductions in

GHG emissions will require an observational verification strategy. There is precedent for such a strategy in the mechanisms for enforcement of the Nuclear Test Ban Treaty and of the Montreal Protocol for the Control of Ozone Depleting substances. Verification of these treaties is supported by observations that are reviewed by government officials and independently by the scientific community.

- Greenhouse gas emission permits will have a value that can be affected by measurements. Uncertainty associated with discrepancies between inventories and observations will affect the value of permits in any market.

To remedy the lack of attention to observations in the scoping document we recommend replacing the sentence at the end of the third paragraph of section IV-D:

“Continuous atmospheric monitoring of greenhouse gases may be useful for determining the effectiveness of emission reduction strategies and for future inventory development.”

with:

“Direct measurements of atmospheric greenhouse gases will be an essential component of California’s strategy for verifying that overall greenhouse gas emission reductions are occurring and that specific policies are having their intended effect.”

Sincerely,



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