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SANTA BARBARA • SANTA CRUZ

R. F. WEISS  
SCRIPPS INSTITUTION OF OCEANOGRAPHY  
UNIVERSITY OF CALIFORNIA, SAN DIEGO  
LA JOLLA, CALIFORNIA 92093-0244

TELEPHONE: (858) 534-2598  
FACSIMILE: (858) 455-8306  
E-MAIL: RFWEISS@UCSD.EDU

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California Air Resources Board  
1001 I Street  
Sacramento, California 95814

Subject: Comments on *Climate Change Proposed Scoping Plan, October 2008*:  
Tracking and Measuring Progress

The recently-released *Climate Change Proposed Scoping Plan, October 2008* is an important step toward the implementation of AB 32, *The California Global Warming Solutions Act of 2006*. However, the critical Section IV-D, “Tracking and Measuring Progress”, is fundamentally flawed because it relies almost entirely upon inventorying methods for quantifying and tracking “greenhouse gas” (GHG) emissions that are prone to large errors. Indeed, direct measurements of GHG accumulations in the atmosphere have shown that such “bottom up” inventorying methods can be in error by large amounts, sometimes by factors of two or more. Not surprisingly, “bottom up” emissions reporting tends also to underestimate the actual emissions measured in the atmosphere more often than it overestimates them, suggesting that there are biases in the “bottom up” approach. By comparison, the AB 32 emissions reduction goals for 2020 require verification of reductions of 15 percent relative to present emissions. At present, this goal is simply unreachable by “bottom up” methods alone.

Despite the fact that such concerns are well documented in the open peer-reviewed international scientific literature, Section IV-D of the Scoping Plan outlines an elaborate GHG emissions inventorying plan which relies almost exclusively on “bottom up”, or “Report Card”, approaches. In order to be credible, it is essential that the emissions uncertainty issue be addressed objectively in the Scoping Plan. This means clearly emphasizing that “bottom up” emissions inventory assessments are unlikely to be adequate to verify the GHG emissions reductions mandated by AB 32 and stressing the need for a mix of verification strategies including atmospheric measurements.

In order to add scientific credibility to the Scoping Plan and provide the Air Resources Board with the best available tools to make AB 32 work, it is essential that these shortcomings be remedied. Otherwise there is a very real risk that our citizens and our

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leaders alike will conclude, solely on the basis of “bottom up” emissions assessments, that AB 32 is working, while California’s actual GHG emissions and their changes remain unknown and unverified.

At present the Scoping Plan contains no discussion of uncertainties and only an indirect reference to verification based on atmospheric measurements in a single sentence at the end of the third paragraph in 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 sentence is unacceptably weak and fails to convey the true nature of the verification problem. I suggest that this sentence be replaced by a separate paragraph along the following lines:

“Current strategies for inventorying greenhouse gas emissions described in this section have been shown to be prone to errors that are too large to meet the verification requirements of AB 32. There is therefore a pressing need to develop a mix of improved verification strategies. Among these, atmospheric greenhouse gas monitoring and modeling are essential for determining the effectiveness of emission reduction strategies and for refining inventory assessments.”

It is only through such an honest statement of the problem that the scientific credibility of the Scoping Plan can be maintained and actual progress toward verifiable emissions reductions can be made.

Sincerely,



Ray F. Weiss  
Distinguished Professor of Geochemistry