

To: Economic and Allocation Advisory Committee

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Re: Integrating Environmental Co-Benefits into AB 32's Economic Analysis

Date: October 6, 2009

I am writing to provide a few brief comments on the importance of integrating environmental co-benefits into the economic analysis of GHG reduction scenarios. As an environmental law professor, not an economist, I offer my perspective on the legal backdrop for such integration, not the methodology for achieving it.

AB 32 presents a unique opportunity and a unique challenge: unlike many single-issue environmental statutes, AB 32 expressly requires the California Air Resources Board (CARB) to consider and integrate environmental (and economic) co-benefits into its policy development. While the ARB is evaluating the co-pollutant benefits associated with its GHG reduction strategies in its public health analysis, it is critical to integrate those findings into the economic analysis in order to more accurately assess the full social welfare consequences of the state's options.

The discussion below highlights AB 32 provisions that require ARB to integrate environmental co-benefits into its decisionmaking process. It next spotlights a recent 9<sup>th</sup> Circuit Court of Appeals decision which invalidated an agency's decisionmaking process due to its failure to incorporate environmental benefits into its cost-benefit analysis. Finally, it highlights the relevance that integrating environmental co-benefits into the economic analysis could have for CARB's evaluation of relevant policy options.

### AB 32 and Environmental Co-Benefits

As the Committee is no doubt aware, AB 32 repeatedly emphasizes the importance of integrating GHG and co-pollutant reduction objectives. The legislative findings make clear that CARB is to design its GHG emission reduction measures "in a manner that, [among other things,] maximizes additional environmental and economic co-benefits for California, and complements the state's efforts to improve air quality."<sup>1</sup>

While the overarching parameter for the state's reduction strategies is achieving the "maximum technologically feasible and cost-effective reductions in greenhouse gas emissions ....[,]"<sup>2</sup> this inquiry is not self-explanatory. AB 32 states that, in adopting regulations for direct emission reductions or market-based compliance mechanisms, "to the extent feasible ... the state board shall ... [d]esign the regulations ... in a manner that

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<sup>1</sup> CAL. HEALTH & SAFETY CODE § 38501(h).

<sup>2</sup> *Id.* at § 38562(a).

... seeks to minimize costs and maximize the total benefits to California ...”<sup>3</sup> It states further that the state board “shall ... [c]onsider overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health.”<sup>4</sup> Nor are these mandates limited to direct regulatory mechanisms. Before including market-based mechanisms, and to the extent feasible, CARB “shall ... [m]aximize additional environmental and economic benefits for California, as appropriate.”<sup>5</sup>

An economic analysis that purports to weigh the relative costs and benefits of alternative GHG reduction strategies must therefore include the relevant public health benefits arising from co-pollutant reductions.<sup>6</sup> Benefits include lives saved, lower health-care costs, greater worker productivity, and enhanced property values.<sup>7</sup>

CARB’s separate public health assessments are critical but not sufficient. The data developed for the separate public health assessments should be integrated into the economic analysis to provide a more complete picture of the public health-related economic benefits to be derived from alternative GHG reduction scenarios.

I cannot offer methodological advice, but I have attached a draft white paper that quantified the co-pollutant reduction co-benefits associated with federal climate legislation proposed in 2008.<sup>8</sup> While the analysis of the benefits would likely differ as applied to California in light of the state’s relative lack of coal-burning power, the methodology should nonetheless be instructive to state economists seeking to integrate the economic benefits of co-pollutant reductions into the overarching economic analysis.

#### CBD v. NHTSA: The Importance of a Comprehensive Approach to Benefits Analysis

A recent 9<sup>th</sup> Circuit case, *Center for Biological Diversity v. National Highway Traffic & Safety Administration* (CBD),<sup>9</sup> provides a useful reminder of the importance of a fully-integrated economic analysis. In that case, CBD challenged the cost-benefit analysis that NHTSA had prepared to support its creation of “maximum feasible” fuel economy standards. Although NHTSA had monetized the benefit of reducing criteria pollutants, it had refused to monetize the benefits of carbon reductions because the benefits were too speculative. The 9<sup>th</sup> Circuit found NHTSA’s failure to consider the

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<sup>3</sup> *Id.* at 38562(b)(1). In describing a similar analysis to be undertaken in connection with the scoping plan, AB 32 states that “[t]he state board shall evaluate the total potential costs and total potential economic and noneconomic benefits of the plan for reducing greenhouse gases to California’s economy, environment, and public health ....” *Id.* at § 38561(d). Environmental and public health considerations are therefore significant components of an analysis of “total” benefits.

<sup>4</sup> *Id.* at 38562(b)(6).

<sup>5</sup> *Id.* at 38570(b)(3).

<sup>6</sup> See Memorandum on “Investment in Disadvantaged Communities” from James K. Boyce to EAAC Members (October 5, 2009).

<sup>7</sup> See, e.g., *id.* at 3.

<sup>8</sup> Britt Groosman, Nicholas Z. Muller, and Erin O’Neill, *The Ancillary Benefits from Climate Policy in the United States* (Draft white paper, September 2009).

<sup>9</sup> 538 F.3d 1172 (9<sup>th</sup> Cir. 2008)

benefits of carbon reductions in developing its fuel economy standards to be arbitrary and capricious.<sup>10</sup>

The relevant pollutants are reversed, but the analogy is apt. If California fails to consider the co-pollutant reduction benefits of alternative GHG reduction policies in its economic analysis, it could likewise be found arbitrary and capricious. The argument for including the economic benefit of co-pollutant reductions in California is particularly strong in light of AB 32's explicit reference to the importance of maximizing total benefits, including public health benefits.

### Implications for California Climate Policy

Incorporating the economic benefits associated with co-pollutant reductions would allow policymakers to better assess the "total benefits" associated with alternative policy options and provide a more complete basis for selecting among available policy options. AB 32 already requires policymakers to ensure that the state's GHG policies do not lead to increases in co-pollutants and complement the state's air quality goals by enhancing pollution reduction in polluted areas.<sup>11</sup> Incorporating public health benefits into the economic analysis is likely to provide the economic case for these statutorily-required results.

The co-pollutant benefits of GHG reductions will inevitably vary significantly depending upon differing sources' ratio of co-pollutants to GHG emissions, the available control options, and the damages in light of population density and cumulative exposures.<sup>12</sup> That analysis is likely to reveal that the environmental co-benefits would be maximized by adopting GHG reduction policies that ensure real emissions reductions by the sources with the heaviest co-pollutant emissions in the state's most polluted areas.<sup>13</sup> The economic analysis could reveal the relative economic superiority of policy mechanisms that maximize GHG reductions in areas and ways that achieve the greatest co-pollutant reductions.

While this memo is intended to outline the importance of incorporating public health benefits into the economic analysis, not to present the underlying GHG policy options, it is worth noting how the economic analysis could impact the relative desirability of those underlying options.

For example, although the scoping plan currently outlines a cap-and-trade program for controlling industrial sources, the economic analysis could reveal the relative

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<sup>10</sup> *Id.* at 1198-1202.

<sup>11</sup> See CAL. HEALTH & SAFETY CODE § 38562(b)(2) (requiring CARB to "[e]nsure that activities undertaken to comply with [its] regulations do not disproportionately impact low-income communities"); § 38570(b)(2) (requiring that, to the extent CARB employs market mechanisms, they "prevent any increase in the emissions of toxic air contaminants or criteria air pollutants). See also *supra* notes 1-5 and accompanying text (describing AB 32 provisions requiring that co-benefits be maximized).

<sup>12</sup> See Boyce Memorandum, *supra* note 6, at 3 (describing the relevant factors).

<sup>13</sup> See *id.* at 3-6 (describing the co-pollutant emissions variations that are likely to impact marginal abatement benefits).

superiority of direct regulation in certain instances. Conceivably, the total benefits to the state could be maximized by instituting more direct regulation of highly-polluting industries located in heavily-populated areas.

Within the contours of a trading program, the economic analysis could also reveal the benefits of modifying the trading program to maximize its distributional benefits. Prof. Boyce and I have argued elsewhere for trading limitations in impacted areas or higher fees for carbon emissions in impacted communities.<sup>14</sup> Since offsets do not reduce co-pollutants within the covered sectors, limiting the use of offsets could also enhance co-pollutant reduction benefits.<sup>15</sup> While these options might appear less “efficient” than an unfettered trading program if viewed solely in terms of marginal abatement costs, their relative efficiency is likely to be enhanced when marginal abatement benefits, like co-pollutant reductions, are taken into account.<sup>16</sup>

On a separate note, it is distinctly possible that, whatever its design, a GHG reduction program will help mitigate, but not eliminate, the state’s significant air pollution. AB 32’s mandate to complement the state’s air quality goals could also be fulfilled by indirect mechanisms, like targeting GHG auction revenue for co-pollutant reductions in impacted communities. Although this memorandum is focused primarily on the importance of considering co-pollutant benefits in CARB’s economic analysis, this suggestion implicates EAAC’s other hat: auction revenue distribution.<sup>17</sup>

### Conclusion

Co-pollutants come out of the same smokestacks and tailpipes as GHGs, and whatever policies are designed to affect one will affect the other. The drafters of AB 32 recognized these interconnections and required CARB to develop an integrated policy that not only reduces GHGs, but does so in a manner that helps the state achieve a variety of important and related objectives. Creating an integrated policy in turn requires CARB to include the co-pollutant reduction benefits in its economic analysis.

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<sup>14</sup> See *id.* at 8-10 (describing limitations on trading and offset use to maximize co-pollutant reduction benefits in impacted areas); Alice Kaswan, *Environmental Justice and Domestic Climate Change Policy*, ENVTL. L. REPORTER NEWS & ANALYSIS 10287, 10304-306 (2008) (describing mechanisms for integrating GHG and co-pollutant reduction goals). This memo is primarily focused on the justifications for incorporating the benefits of co-pollutant reductions into CARB’s economic analysis, not the particular scenarios that would maximize co-pollutant reductions and their associated benefits. Further information could be provided if it is of interest.

<sup>15</sup> See Kaswan, *supra* note 13, at 10307.

<sup>16</sup> See Boyce Memorandum, *supra* note 6, at 2, 4 (observing that differences in “marginal abatement benefits . . . provide a rationale for greater pollution reductions (and higher marginal abatement costs) for some emission sources than for others”).

<sup>17</sup> See Boyce Memorandum, *supra* note 6, at 7-8. The community benefits fund proposed in California AB 1405 would also target auction revenues in this fashion. For the latest version of the bill, as last amended in the California Senate on September 1, 2009, see <http://www.aroundthecapitol.com/billtrack/text.html?bvid=20090AB140593AMD>.