**Comments on Economic & Health Analysis for CARB Scoping Plan**

Thanks for the opportunity to expand on oral comments offered during the webinar. It's difficult to do this as a single context, since I have observed and commented during several previous (and one subsequent) meetings, and see that a recommendation has already been made, apparently based on the models used in this one. We are promised that the full scoping plan will include other parameters, yet economics seems to be a major driver in decision-making on how actions to address climate change are prioritized.

The choice of Option 3 in 2045 appears to have been recommended because it is the cheapest option relative to health benefits, as narrowly assessed. Many of my age will be gone by then, and our children, grandchildren, and generations beyond will bear the weight of our reluctance to sacrifice for and invest in their future, as well as that of many other species that inhabit this shared planet. Here are some specific critiques, categorized:

**The Industrial Model**

Economic costs and health "benefits" present a narrow frame and odd combination. They address monetary costs and avoidance of costs, but not costs of damage from climate change, or of benefits of other climate strategies proposed. In the workshop these were dismissed as "qualitative concerns" that would be addressed elsewhere. The emphasis, described as being statute-driven, was on direct reduction of quantifiable emissions. Solutions presented were centralized, large-scale, capital intensive, and highly technical. This approach carries a likelihood of continued upward migration of wealth. The presenter stated explicitly that consumers would bear the costs, while failing to address other adverse consequences to those of us not positioned to buy our way out of the harms of a warming planet.

**Health Costs**

Perhaps because the studies were under CARB's auspices (grant-funded?), these models were broad in scope, with limited granularity, yet very limited in focus: reduction in emissions, the first primarily from transportation and other fossil fuel use, the second addressing the health risks of catastrophic fires and various approaches to forest management. These were deemed "well-researched;" everything else was, apparently, considered qualitative. Surely there must be data available on morbidity and mortality from heat stress (e.g. Portland, BC), and other unusual weather extremes (e.g. Texas). Health and social costs are demonstrated to correlate, yet inequity in who will bear the costs was barely mentioned. Plus, of course, the omission of evaluation of impacts pesticides, the known detrimental environmental and health effects of which have been relegated as qualitative due to lack of investment in research.

**Social Costs**

Presented with no parameters and no data as to what was or will be considered, this was a quick "invest today, get payback in the future" recommendation for Option 3 out of 4, winnowed down from 8 options in the first presentation. There are already many social costs to Business as Usual (BAU), and planetary warming is likely to exacerbate them: housing, workforce training, food costs and access, limits to mobility, climate refugees, just to name a few. Many EJAC comments and questions revolved around social costs and all were poorly answered.

**Natural and Working Lands (NWL)**

Not a single recommendation from CARB's EJAC subcommittee on scoping was incorporated, or even mentioned.Yet in the economics presentation, agriculture was graphed, without explanation, as bearing a large proportion of the costs ascribed to mitigation measures. Early in this webinar, ag was referenced as an emissions source, also without explanation, aside from discussion of ozone and PM2.5s from forest fires.

Various scenarios for forest management were addressed as they related to health costs. The NWL presenter at least had the decency to apologize for the limitations of his presentation. He addressed, in passing, the costs and labor-intensive nature of managing forests, both urban and rural. (At this point in our history, it would be disingenuous to call our remaining rural forests "natural.") The catastrophic dangers of forest fires were reduced to smoke, and the addition of urban forests was framed as an alternative to aggressive forest management; both options were deemed costly implement and maintain.

To combat global warming, we need restoration of our forests to health by managing undergrowth that creates unnatural fire risks, by eliminating even-aged single species reforestation, and by preserving old growth, among other conservation methods. This can be done without wide use of herbicides.

In urban and suburban areas, augmenting tree cover, more parks and green spaces, and community gardens all have direct cooling effects, the potential to sequester carbon, and add value and health to neighborhoods, as long as methods used limit harmful chemicals and attend to soil health.

Pesticide reduction, conversion to organic farming, and regenerative practices in agriculture have been demonstrated to increase carbon capture and soil restoration, practices that have been effective far longer than removal and storage of carbon by the relatively untested mechanical, energy-intensive methods relied on in alternatives presented. To emphasize the latter, and to discount the former, tilts the process heavily toward increasing, not reducing, environmental injustice.

**The Distributive Model**

CARB's scoping plan is mandated to incorporate ways to promote environmental justice. This means looking beyond industrial methods based on direct extraction and reduction of carbon by industrial means. We need to know who will be most impacted, both by measures proposed, and by damages from failure to act quickly and equitably. In whose neighborhoods, and on whose land will renewable energy installations be installed? Where would plants to extract carbon be placed, and under whose feet would it be stored? If cap and trade is continued, who bears the brunt of trade-offs? These are sovereignty and quality of life concerns that cannot be reduced to dollars and cents.

In the economic realm, income inequality must be considered. For example, in order to increase capacity for labor-intensive solutions in forestry, farming, and restoration of natural and working lands, both urban and rural, workers must receive appropriate training and a living wage. Use of technology to develop alternative energy sources, increase the efficiency of transportation and distribution services, and track progress toward climate goals should be income leveling, not an excuse for widening the gap.

Decentralization of production of food, and some goods and services, will reduce transportation costs and build in resiliency during such events as pandemics and climate emergencies. Energy systems must also be decentralized, increasing rooftop solar in urban areas, forming community-based power coops with collaborative grids, and developing accessible, fossil-fuel free, public transportation.

**Restoration-based, Not Consumption-based**

Finally, reduced consumption of some products (e.g., plastics, appliances, tech, and vehicles, all built for frequent replacement, limited recycling, and difficult disposal), restoration of biodiversity, and honoring the functions of the natural world are essential to reduce human climate impacts. 2045 is too late. The line between quantitative and qualitative impacts is not a solid boundary. For California to show real leadership, the final scoping plan must project this final vision more elegantly, holistically, and justly. Perhaps these issues will be addressed in the final scoping plan. If so, why are choices of options already being made? Our future is about qualitative choices. This is not just about money.

Kathleen Kilpatrick, RN, MN, NP, PHN, CSN

Retired School Nurse, PVUSD