As California health professionals concerned about the climate emergency, we are excited to participate in the 2022 Scoping Plan and share the many opportunities we see for climate action to improve public health. While access and quality of medical care determine twenty percent of health outcomes, social and environmental factors are responsible for fifty percent. (Magnan, 2017). California can prioritize climate solutions which increase equity, promote economic recovery and save two dollars on health for every dollar we invest (Wang, 2020).

**We strongly support carbon neutrality by 2035 and increased ambition for 2030**. California's health is already being harmed by heat, drought, and wildfires which are escalating much faster than predicted. The sooner we decarbonize, the less it will cost and the more suffering it will prevent. An extra decade of emissions from the fifth largest global economy would have serious repercussions. If California is to lead our nation to carbon neutrality we must do it in time for others to follow.

**Accelerate the target for a zero carbon electrical grid without combustion of fossil fuel and biomass.** Fine particulates from fuel combustion, even at low levels of exposure, increase deaths from heart disease, lung disease, strokes, chronic kidney disease, dementia, diabetes, and lung cancer (Bowe, 2019). Combustion of woody biomass is dirtier than coal, creating a multi-decade carbon debt for a material that has alternative carbon negative uses. We should adopt solutions which decrease emissions instead of trading credits and allowing continued pollution of low income communities.

**Avoid the false promise of smokestack carbon capture.** Adding carbon capture to fossil fuel powered plants and industries is more expensive and emits more carbon than powering them with clean energy. (Butler, 2020; Vinca, 2018). Even with federal subsidies, carbon capture is only cost effective if CO2 is sold for enhanced oil extraction (Nunez-Lopez, 2019). Carbon capture powered by fossil fuel exacerbates air pollution and environmental injustice because increased fuel use increases emission of criteria pollutants and upstream carbon (Jacobson, 2020). Large scale CO2 storage is untried and California's seismic activity, fracked oil fields, and abundance of abandoned wells increase the risk of leaks into air and water. Using public money to prop up the fossil fuel industry will delay the transition to clean energy and divert funds that could create jobs, clean energy and energy efficiency in environmental justice communities.

**Maximize natural carbon sequestration.** Composting biomass, dairy manure, and organic waste for agricultural land application; regenerative farming and ranching, and expanding urban tree canopies are tried and true methods of sequestering carbon which have the added benefits of decreasing agricultural and landfill emissions, lowering urban energy demand for cooling and increasing climate resilience. In comparison, biogas leaks methane and emits carbon upon combustion. Infrastructure investments in biogas will prolong the use of natural gas. Large industrial dairies should be regulated and required to reduce methane emissions at their own expense. Public funds should go to smaller dairies for alternative manure management. Hydrogen from biomass or solid waste should only be produced with clean renewable energy.

**Decarbonize new buildings by 2025, make existing buildings electric ready, and limit appliance replacements to electric by 2035.** California burns more natural gas in buildings than in power plants with the consequence that 12 million Californians are exposed to dangerous levels of indoor pollution from gas cookstoves. Outdoor pollution from residential fuel combustion is responsible for $3.5 billion in annual health costs from heart and lung disease and premature death (Logue, 2013; Zhu, 2020). Subsidized retrofits of low income housing should be prioritized as their residents will receive the largest health and economic benefits, have the fewest resources to cover up front costs, and run the highest risk of being priced out of housing by electrification mandates (Lamb, 2021).

**Prioritize active transportation and transit to decrease VMT by modeling for benefits of physical activity**  As the agency tasked with overseeing holistic climate action, CARB must look beyond air quality to other health benefits. The Integrated Transport and Health Impact Model (ITHIM) developed by CDPH and sponsored by CARB, is a modeling tool for active transportation and transit policy which should be added for modeling scenarios. According to ITHIM, shifting all short trips statewide to active transportation would prevent 4807 chronic disease deaths annually because of physical activity versus 8 deaths from cleaner air. A single minded focus on air quality that did not differentiate between sedentary and active measures would seriously distort decision making.

**Stop the worst oil production first and end it completely by 2035.**  California's thick oil is more carbon intensive to extract than most oil, requiring extra fossil fuel to apply heat and pressure. This increases pollution exposure for communities already burdened with environmental injustice and health disparities. People living within a half mile of active oil wells have increased rates of heart disease, lung disease, cancer, premature births and low birth weights. Economic analyses confirm that fossil fuel production can be tapered in parallel with reductions in fossil fuel demand for transportation, while providing a just transition for workers and still save tens of billions in health costs (Brown, 2021;Deschenes, 2021, Pollin, 2021).  **S**teaming and fracking should end immediately along with all types of extraction within 2500 feet of residences, schools, and other sensitive receptors. Permits for new wells should end by 2022 and all production by 2035.

Thanks for this opportunity to share our perspective.

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