

Rajinder Sahota
Deputy Executive Officer
Climate Change & Research
California Air Resources Board

RE: Initial Air Quality & Health Impacts and Economic Analyses Technical Workshop of the 2022 Scoping Plan Update to Achieve Carbon Neutrality by 2045.

Dear Ms. Sahota,

Southern California Edison (SCE) appreciates the opportunity to provide comments on the Initial Air Quality & Health Impacts and Economic Analyses Technical Workshop for the 2022 Scoping Plan Update (2022 SPU), held on April 20 by the California Air Resources Board (CARB). As CARB prepares to release the draft 2022 SPU, SCE urges CARB to consider the following comments guided by Pathway 2045¹, our data-driven analysis of the steps that California must take to meet the state's 2045 carbon neutrality goals.

The appropriate alternative to achieve carbon neutrality

SCE applauds CARB's continued efforts in developing modeling scenarios that illustrate how California can decarbonize its economy. We also would like to acknowledge the efforts of CARB staff and the consultants in providing additional information that help SCE and all stakeholders better understand the modeling results.

More importantly, SCE commends CARB for selecting Alternative 3 as the recommended scenario for the 2022 SPU. SCE supports many aspects of Alternative 3, including that it: (1) aligns with California's state climate goals, including achieving carbon neutrality by 2045 and the 80% reduction in GHG emissions from 1990 levels by 2050; (2) allows for a longer timeframe for clean technologies to develop and scale; (3) coincides with end-of-life retirement for vehicles and appliances; (4) provides more flexibility when considering uncertain technologies such as engineered carbon dioxide removal technologies; and (5) represents the most cost-effective solution, the least job impact disruption, and significant health benefits as compared to the other three Alternatives CARB analyzed.

Fine-tuning Alternative 3

With the understanding that the draft scoping plan will be released for public comments in the second week of May, SCE would like to reiterate several concerns with the initial modeling results of source emissions in the E3 presentation. These concerns include:

1. High projected GHG emissions for the electric sector

While SCE supports many aspects of Alternative 3, SCE also recommends that CARB consider a sensitivity analysis of this alternative with lower electric sector GHG emissions to determine its cost-effectiveness. After CARB pursues the sensitivity analyses to Alternative 3, CARB should select the most cost-effective scenario to be adopted in the 2022 SPU. SCE is concerned that Alternative 3 has relatively higher electric sector GHG emissions, necessitating industrial and agriculture sectors to decarbonize

¹ Pathway 2045. Edison International. November 2019. <https://www.edison.com/home/our-perspective/pathway-2045.html>

more significantly. This would likely prove to be expensive, given that these two economic sectors are considered the hardest to decarbonize.

Previous California-sponsored decarbonization studies, which include high electrification, energy efficiency, and clean electric generation, showed significantly lower GHG emissions in the electric sector (varying from 0 to 13MMT²) relative to Alternative 3 electric sector emissions. SCE's Pathway 2045 analysis shows that the electric sector will contribute 10MMT of GHG emissions in 2045.³ More importantly, a scenario with high electrification and clean electric generation is one of the least cost and least risky scenarios compared to other scenarios.⁴ As noted in the CARB sponsored 'Achieving Carbon Neutrality in California' study, carbon mitigations for the industrial sector, whether through hydrogen or electrification, are as expensive as direct air capture when mitigating the last 20% of GHG emissions.⁵ Thus, it may be more cost-effective for California to decarbonize the electric sector further than Alternative 3's 30 MMT GHG emissions in 2045 while allowing higher GHG emissions for the industrial and agriculture sectors.

2. Cost-benefit analysis of public health measures

SCE appreciates CARB's efforts to provide stakeholders with economic impact information, including direct implementation costs, macroeconomic effects, and health impacts. However, while the data presented in the April 20th workshop provided stakeholders with a good sense of the economic impact, SCE recommends that CARB continues to refine the metrics used to weigh and evaluate the costs and benefits of the potential measures to be part of the draft 2022 SPU.

For instance, the summary of the scenarios on slide 12 of CARB's presentation⁶ shows a table with costs and benefits that are not comparable. Some of the numbers are annualized costs, others are the sum of two months of a specific year, and others are the total aggregation of the impacts until the end of the periods, either 2035 or 2045. SCE recommends that this table be updated to use a singular metric across all three analyses. This would allow stakeholders to compare each of the four Alternatives more easily.

Additionally, the quantification of the health benefits done in the Costs, Health, and Economics Analysis presentation by CARB only include the health benefits derived from improvements in air quality, and other equally important climate adaptation benefits are not included. Even though it is hard to quantify the local benefits from climate adaptation measures, increasing urban forestry has an immediate impact on reducing extreme heat events such as the urban heat island effect.⁷ Since extreme

² E3's *Deep Decarbonization in a High Renewable Future* study demonstrated about 13MMT of electric sector GHG emissions in 2045 for the high electrification scenario. E3's *Achieving Carbon Neutrality in California* study showed that the electric sector was 95% to 100% zero-emission generation or 0 to 9MMT in 2045.

[https://www.ethree.com/wp-](https://www.ethree.com/wp-content/uploads/2018/06/Deep_Decarbonization_in_a_High_Renewables_Future_CEC-500-2018-012.pdf)

[content/uploads/2018/06/Deep_Decarbonization_in_a_High_Renewables_Future_CEC-500-2018-012.pdf](https://www.ethree.com/wp-content/uploads/2018/06/Deep_Decarbonization_in_a_High_Renewables_Future_CEC-500-2018-012.pdf)

³ Pathway 2045: Update to the Clean Power and Electrification Pathway. Southern California Edison. November 2019. <https://www.edison.com/home/our-perspective/pathway-2045.html>

⁴ *Deep Decarbonization in a High Renewable Future*, June 2018, p. 58.

⁵ *Achieving Carbon Neutrality in California*, October 2020, p. 75. <https://www.ethree.com/achieving-carbon-neutrality-in-california-e3-presents-draft-report-at-california-air-resources-board-public-workshop/>

⁶ Scoping Plan Workshop: Initial Air Quality & Health Impacts and Economic Analyses CARB NWL (4-20-22). California Air Resources Board staff. April 2, 2022. https://ww2.arb.ca.gov/sites/default/files/2022-04/SP22-Initial-AQ-Health-Econ-Results-ws-CARB-NWL_0.pdf

⁷ Adapting to Extreme Heat in California: Assessing Gaps in State-Level Policies and Funding Opportunities. UCLA Luskin Center for Innovation. October 2021. <https://innovation.luskin.ucla.edu/wp-content/uploads/2021/10/Adapting-to-Extreme-Heat-in-California.pdf>

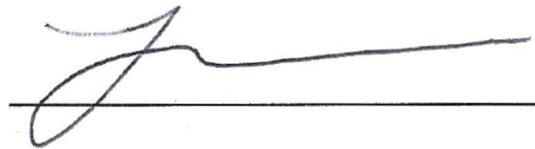
heat is the climate impact that causes more deaths than all the other climate impacts⁸, CARB should consider including these co-benefits in the modeling.

Refining climate impacts and the associated adaptation actions will provide better information for policymakers and stakeholders on which measures are most cost-effective in achieving carbon neutrality.

Conclusion

SCE thanks CARB for considering the above comments on the Initial Air Quality & Health Impacts and Economic Analyses Technical Workshop of the 2022 Scoping Plan Update. We look forward to a close collaboration with CARB staff and its consultants during the 45-day period following the release of the draft 2022 SPU, where we expect to review a detailed list of the assumptions and the data utilized by the teams that brought you to the analyses and conclusions presented in the last two workshops. Please do not hesitate to contact me at (626) 302-6984 with any questions or concerns you may have. I am available to discuss these matters further at your convenience.

Sincerely,

A handwritten signature in black ink, appearing to read 'Laura Renger', is written over a solid horizontal line.

Laura Renger
Director, Electrification & Customer Services Policy
Regulatory Affairs
Southern California Edison

⁸ Climate Change Indicators: Heat-Related Deaths. US EPA. <https://www.epa.gov/climate-indicators/climate-change-indicators-heat-related-deaths>