SOUTHERN CALIFORNIA EDISON

September 3, 2021

Rajinder Sahota
Division Chief
Industrial Strategies Division
California Air Resources Board

RE: Scenario Concepts 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 Scenario Concepts Technical Workshop of the 2022 Scoping Plan Update to Achieve Carbon Neutrality by 2045, held on August 17, 2021, by the California Air Resources Board (CARB). This technical workshop and comment process allows stakeholders to comment on the scenario concepts related to future energy and technology options that will help define the best path to achieve carbon neutrality in the state.

SCE's comments are focused on five of the topics addressed in the CARB presentation[1] and are guided by Pathway 2045[2], our roadmap for enabling a clean energy future. Pathway 2045 provides a holistic, economy-wide assessment of clean energy and other decarbonization measures needed to reach carbon neutrality in California by 2045 in a feasible and cost-effective manner. SCE offers the following comments for consideration as CARB develops the scenario design options.

I. Carbon Neutrality Timeframe Scenario Design Recommendations[3]

In assessing the carbon neutrality timeframe scenario design options, SCE recommends adopting Option C, which represents compliance with both the California Global Warming Solutions Act of 2006 (SB 32)[4] and the California Governor's executive order to achieve carbon neutrality (EO B-55-18), while also aligning with previous decarbonization planning efforts such as the CARB Scoping Plan Update of 2017[5] and the SB 100 Joint Agency Report[6].

If CARB pursues Option A, an accelerated decarbonization path, SCE requests that CARB also provide analyses on the cost and feasibility. The information on the costs and feasibility would help provide insights on the impacts to Californians.

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[1] 2022 Scoping Plan Update – Scenario Concepts Technical Workshop. California Air Resources Board. August 17, 2021, Slide 9. https://ww2.arb.ca.gov/sites/default/files/2021-08/carb_presentation_sp_scenarioconcepts_august2021_0.pdf.
[2] Pathway 2045: Update to the Clean Power and Electrification Pathway. Edison International. November 2019. https://www.edison.com/home/our-perspective/pathway-2045.html.
[3] Ibid. Slide 12
[4] SB-32 California Global Warming Solutions Act of 2006: emissions limit. (2015-2016). https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.
[5] Governor Brown Signs 100 Percent Clean Electricity Bill, Issues Order Setting New Carbon Neutrality Goal. September 10. 2018. https://www.ca.gov/archive/gov39/2018/09/10/governor-brown-signs-100-percent-clean-electricity-bill-issues-order-setting-new-carbon-neutrality-goal/index.html and https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf.
[6] SB 100 Joint Agency Report. California Energy Commission. https://www.energy.ca.gov/sb100.

II. Role of Engineered Carbon Removal Scenario Design Recommendations[7]

In reviewing the role of engineered carbon removal scenario design options, SCE recommends that, regardless of the timeframe selected for achieving carbon neutrality (2035 or 2045), CARB should consider the options that include carbon capture and sequestration (CCS) and carbon removal from the atmosphere, as detailed in Options B and C, for areas where electrification or zero-carbon energy sources are not available and additional GHG emissions need to be removed.

III. Carbon Free Electricity Grid Scenario Design Recommendations[8]

SCE recommends that CARB consider a more holistic modeling approach rather than defining the carbon-free electricity in the grid as an input. Since CARB has previously used an economy-wide GHG emissions model, that analysis should be leveraged to define the electric sector GHG emissions target. Once the electric sector GHG emissions target is set, SCE recommends that CARB utilize a capacity expansion model to determine the resources needed to meet the GHG emissions reduction and load constraints while meeting SB 350[9] renewable portfolio standard (RPS) requirements and SB 100 clean energy goals. If the capacity expansion model indicates a need to build additional clean resources beyond the minimum requirements of SB 350 and SB 100[10], this would be reflected in the resource buildout. That said, based on the 2030 electric sector GHG target range envisioned in the 2017 Scoping Plan Update[11], the California Public Utilities Commission (CPUC) has recently indicated that for CPUC-jurisdictional load-serving entities, a 38 MMT GHG target will be adopted for 2030. SCE strongly supports this GHG target, which implies a higher percentage of clean energy by 2030 than mandated by SB 100.[12]

To answer the question regarding when California should have zero-carbon electricity, SCE recommends that CARB, the California Energy Commission (CEC), the CPUC, and the California Independent System Operator (CAISO) engage in electric sector modeling to analyze the costs and reliability implications of a zero-carbon electricity grid compared to a net-zero carbon-electricity sector that allows for either carbon sequestration in the electric sector or offsetting sequestration outside of it. Economically maintaining system reliability as the economy relies more on clean electric power in the future may require some remaining combustion resources from natural gas and low carbon fuels such as biomass, renewable natural gas, or renewable hydrogen. The electric sector will be a foundational element in enabling California to decarbonize other sectors of the economy. As such, it will be critically important to understand the reliability, infrastructure needs, and overall cost implications in moving towards a zero or net-zero carbon electricity grid.

IV. Vehicle Fleet Electrification Scenario Design Recommendations[13]

SCE supports the current targets set by the Governor's executive order EO N-79-20[14] and also suggests modeling a "100% light-duty (LDV) zero-emission vehicles (ZEV) sales in 2030" scenario as described in Option

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[7] Ibid. Slide 14

[8] Ibid. Slide 16

[9] Clean Energy and Pollution Reduction Act - SB 350. California Energy Commission. October 7, 2015. https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350 and https://leginfo.legislature.ca.gov/faces/billHistoryClient.xhtml?bill_id=201520160SB350.

[10] Ibid.

[11] California's AB 32 2017 Scoping Plan Update. November 2017. https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

[12] Ibid.

[13] Ibid. Slide 20

[14] Governor Newsom's Zero-Emission by 2035 Executive Order N-79-20. California Air Resources Board. January 19, 2021. https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf

B. Thus, SCE recommends combining the following elements of Options C and D in CARB's scenario design, which produces the following scenario:

a. 100% ZEV sales of LDVs, medium-and heavy-duty (M/HDVs), drayage trucks, and off-road equipment in 2035 (Option C)
b. 100% ZEV sales of medium- and heavy-duty, where feasible, in 2040 (Option D)

V. Residential and Commercial Building Decarbonization Scenario Design Recommendations[15]

For new buildings, SCE supports the efforts by the CEC to transition towards all-electric new construction building efficiency standards in the 2025 Energy Code (Title 24)[16], which would take effect in January 2026. CEC's recent Building Decarbonization Assessment (AB 3232) also recognizes that "accelerating efficient electrification of building end uses in new and existing buildings represents the most predictable pathway to achieve deep reductions in building emissions."[17]

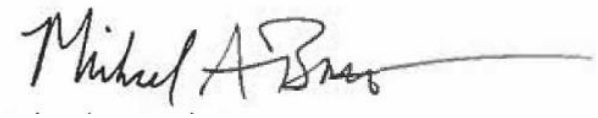
We also support the targets presented by CARB staff to their Board in November 2020, which proposed "100% electric appliance sales by 2035". This proposal is an immediate least regret action the state could take to help reach carbon neutrality and it aligns with Options B and C. SCE is also able and willing to provide CARB, upon request, a more detailed option for analysis based on our Pathway 2045 analysis, which finds that at least 30% of existing buildings should be retrofitted with efficient electric space and water heating appliances by 2030, and 70% by 2045.

Additionally, we urge CARB to propose a quantifiable electric heat pump target and a timeline for adoption of heat pump technologies within the Scoping Plan Update, so that state and local agencies can set measurable and actionable goals for building electrification, similar to the ones set for Transportation Electrification under SB 350[18].

VI. Conclusion

SCE thanks CARB for taking into consideration the above comments on the Scenario Concepts Technical Workshop and looks forward to its continued partnership with CARB and stakeholders in the development of the 2022 Scoping Plan Update. Please do not hesitate to contact me at (626) 302-8442 with any questions or concerns you may have. I am available to discuss these matters further at your convenience.

Sincerely,



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[15] Ibid. Slide 28
[16] Building Energy Efficiency Standards - Title 24. California Energy Commission. https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards
[17] California Energy Commission's AB3232 Building Decarbonization Assessment, August 2021, p. 15 https://www.energy.ca.gov/data-reports/reports/building-decarbonization-assessment
[18] Ibid.