June 24, 2022

Liane M. Randolph, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Submitted electronically

RE: 2022 Draft Scoping Plan

Dear Chair Randolph:

On behalf of the Solar Energy Industries Association ("SEIA") we appreciate the opportunity to comment on the California Air Resources Board's ("CARB") 2022 Draft Scoping Plan. SEIA is a non-profit trade association leading the transformation to a clean energy economy, creating the framework for solar to achieve 30% of U.S. electricity generation by 2030. SEIA has been actively involved in proceedings before the California Public Utilities Commission ("CPUC") advocating for the acceleration of emission reductions from the electric sector. SEIA submits these comments out of a concern that the Draft 2022 Scoping Plan will take a significant step backwards, reversing California's progress towards reaching its climate change goals. The Plan not only ignores the Governor's 2021 request that CARB identify a pathway for achieving carbon neutrality a full decade earlier than the existing 2045 target,[1] but it sets forth a strategy that runs a high risk of not even reaching carbon neutrality by 2045.

A. Reliance on Carbon Dioxide Removal Technology

SEIA was surprised to see the Scoping Plan's heavy reliance on carbon dioxide removal ("CDR") technology to meet the 2045 emission reduction goals. As stated in the Draft Scoping Plan, "there will still be residual emissions in the AB 32 GHG Inventory sectors in 2045 that

[1] July 9, 2021, Letter from Governor Gavin Newsom to CARB Chair, Liane Randolph ("I am requesting that the Air Resources Board evaluate how to achieve carbon neutrality no later than 2035 as part of its 2022 Climate Change Scoping Plan"). *See* https://www.gov.ca.gov/wp-content/uploads/2021/07/CARB-Letter_07.09.2021.pdf

must be addressed."[2] This "residual" amount, however, is not a trifling; it is approximately 100 MMT of CO_2 removal per year. The Draft Scoping Plan's reliance on CDR for this level of CO_2 removal is baffling given the technology and implementation barriers to implementing CDR on a broad enough scale to be able to remove a large quantity of CO_2 from the air by 2045.

As even the Draft Scoping Plan recognizes, there are "relatively few" CDR projects operational.[3] In this regard, the Draft Scoping Plan recognizes that "future research, development, and demonstration projects must refine and commercialize capture systems for more complex application."[4] In other words, the technology is still in a pilot stage. Moreover, the Draft Scoping Plan recognizes the difficulties in siting such facilities. Thus, it states that:

> It will be important to design projects that do not exacerbate community health impacts, include early and ongoing community engagement, and are in compliance with local, state, and federal public health and environmental protection laws. It also should be noted that, as these types of projects are an emerging area of governance, additional coordination and discussion will be needed among the various levels of authorities involved.[5]

Finally, given the cost of such facilities, the Scoping Plan notes that "CDR technologies will need government or other incentive support to get over technology and market barriers."[6] While the Scoping Plan points to *potential* sources of funding, such are far from guaranteed.

Even with Draft Scoping Plan's acknowledgement of certain difficulties associated with CDR, the reality is much graver. By relying too heavily on CDR technologies, the Draft Scoping Plan puts the state's climate goals at risk – a fact which was documented by the consultants Energy + Environmental Economics ("E3") in its October 2020 Report to CARB evaluating scenarios that achieve carbon neutrality in California by 2045[7] -- a report to which the Draft Scoping Plan gives very little recognition. Specifically, E3 stated that heavy reliance on CDR was the "highest risk scenario, from a climate mitigation perspective, because it has the highest remaining direct GHG emissions, and relies on relatively untested CDR strategies which are not

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2 Draft Scoping Plan, p. 72.

3 Id., p. 176. Specifically, the report states that there are only 19 facilities operating globally but does not reference the amount of CO2 capture achieved by those plants. *Id*., p. 74

4 *Id*., p. 176.

5 *Id.,* p. 175.

6 *Id*., pp. 73 -74.

7 *See Achieving Carbon Neutrality in California, Pathways Scenarios Prepared for the California Air Resources Board*, Energy + Environmental Economics (October 2020) ("E3 Carbon Neutrality Report").

widely commercialized."[8] Moreover, E3 concluded that "[c]ontinuing to emit such a large share of gross emissions into the atmosphere through 2045 could result in an overshoot of emissions, with a risk of missing the state's climate goals if CDR options are not implemented early on."[9] To this end, at the time E3 prepared its report, it noted that 15 direct air capture plants were operating worldwide, capturing in total 0.9 MMT annually.[10] This is a far cry from the 100 MMT required by the Draft Scoping Plan, just in California. Moreover, E3 noted that to maintain carbon neutrality the energy required by this process must be supplied either by on-grid or off-grid renewables with large associated land use requirements.[11] Indeed, the energy associated with the CDR infrastructure necessary to remove 100 MMT of CO2 removal is approximately 125,000 GWh – an amount which has not been included in the Load Serving Entities' Integrated Resource Plans ("IRPs") approved by the CPUC.[12]

Reliance on a plan which puts a high degree of faith in unproven technologies, and which fails to include the energy and land needed to power those technologies, places the state's climate goals at risk and is the antithesis of the Governor's request that those goals be accelerated. Instead of rolling the dice and hoping that direct carbon removal in the later years will be successful, CARB should instead focus on directing emissions reductions through retiring fossil fuel power plants, transitioning away from polluting fuels, replacing internal combustion engines with Zero Emission Vehicles, and building out the zero emission and distributed energy resources that will reduce emissions immediately and permanently.

B. Electric Sector Transformation

The Scoping Plan's over reliance on direct carbon removal is also evident in its projection of electric sector emissions of 30 MMT in 2045.[13] This level is simply not consistent with the SB 100 dictate of decarbonizing the state's economy by 2045 and appears to be inconsistent with the CPUC's IRP process which has adopted a resource plan that meets a statewide 38 MMT GHG target for the electric sector by 2030, with the potential for further

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8 E3 Carbon Neutrality Report., p. 4.

9 *Id.*

10 *Id.,* p. 71: "According to the International Energy Agency, there are currently 15 Direct Air Capture plants worldwide that capture 0.9 million metric tons of carbon dioxide annually, while the High Carbon Dioxide Removal scenario requires the sequestration of 80 million metric tons (MMT) of carbon dioxide annually by 2045 for California alone. Furthermore, the energy required by this process must be supplied either by on-grid or off-grid renewables, which would be equivalent to over 100 TWh of electricity demand, with large associated land use requirements."

11 *Id.*

12 *Id.* The Draft Scoping Plan does note that its projected electricity resources needed by 2045 in the Proposed Scenario does not include any additional load to implement CO_2 removal through CCS or direct air capture. Draft Scoping Plan, p. 161.

13 *Id*., p.163.

reductions.[14] Instead of setting a zero emissions goal for the electric sector, the Draft Scoping Plan relies on CDR technology to take care of the remaining 30 MMT of emissions. This certainly does not reflect CARB's stated goal of "squeezing the carbon out of every sector of the economy, setting us on course for a more equitable and sustainable future in the face of the greatest existential threat we face."[15]

CARB appears to be hiding behind certain wording in SB 100 that requires that "eligible renewable energy resources and zero-carbon resources supply 100 percent of all *retail sales* of electricity to California end-use customers." CARB's interpretation that non-retail loads (such as non-retail, behind-the-meter production and consumption, as well as losses from storage and from transmission and distribution lines) are not subject to this law[16] is inconsistent with the intent of SB 100, which repeatedly references "a zero-carbon electric system." A zero-carbon electric system is not achieved if the system is emitting 30 MMT in 2045.[17] And it certainly runs counter to the planned "[c]ontinued transition to renewable and zero-carbon electricity resources [that] will enable electricity to become a zero-carbon substitute for fossil fuels across the economy."[18] The Draft Scoping Plan must recognize a zero emissions goal for the electric sector by 2045 if not before.

Moreover, the Draft Scoping Plan's projection of 10 GW of new gas capacity build by 2045 is confounding.[19] New gas infrastructure is wholly inconsistent with state climate laws.[20] Moreover, the CARB states that a transition away from fossil combustion is the overriding goal of this plan.[21] Planning for 10 GW of new fossil fuel plants when your goal is to transition away

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14 *See* California Public Utilities Commission Decision 22-02-004 (February 10, 2022).

15 Draft Scoping Plan, Executive Summary, p. i.

16 *Id.*

17 The Draft Scoping Plan's assumption of 30 MMT of GHG emissions in 2045 is equivalent to about one-half to two-thirds of the non-retail electricity in 2045 being produced through burning natural gas in combined-cycle power plants. This is based on a calculation from E3 in the documentation for the 2021 Avoided Cost Calculator (ACC), at p. 35, footnote 19, discussing the assumption that all line losses in 2045 would be produced with gas-fired generation. E3 acknowledges elsewhere in this document (p. 33, footnote 17) that the "assumptions used by CPUC staff for IRP modeling do not represent the Commission's dispositive view on SB 100 interpretation." The 2021 ACC documentation is available at ftp://ftp.cpuc.ca.gov/gopher-data/energy_division/EnergyEfficiency/CostEffectiveness/2021%20ACC%20Documentation%20v1b.pdf.

18 Draft Scoping Plan, p. 161.

19 *Id.*, p.162, Figure 4-5.

20 *See, e.g.,* SB100, California Renewables Portfolio Standard Program: emissions of greenhouse gases (De León, 2017-2018); SB 32, California Global Warming Solutions Act of 2006: emissions limit (Pavley, 2015-2016); SB 350 Clean Energy and Pollution Reduction Act of 2015 (De León, 2015-2016).

21 Draft Scoping Plan, p. 146.

from fossil fuels undercuts the Scoping Plan's credibility. The Scoping Plan needs to remove all reference to and reliance on new gas capacity.

Finally, the Draft Scoping Plan references the fact that the transformation in the electric sector will drive investments in a large fleet of generation and storage resources but "will also require significant transmission to accommodate these new capacity additions."[22] One of the Plan's stated strategies for achieving transformation of the electric sector is "Address[ing] resource build-out challenges, including permitting, interconnection, and transmission system upgrades."[23] While SEIA agrees with both points, we are concerned that the CARB Scoping Plan will serve as an impediment to the necessary transmission upgrades. The CARB Scoping Plan will provide a framework which other agencies such as the CPUC and CAISO will use in their respective planning processes. By proposing such actions as backloading GHG emission reductions through CDR technology, the immediate pressure to build the transmission necessary to bring zero emission energy resources and new electrification loads online is relieved. As time progresses, given the long lead times for significant new transmission projects,[24] it will be impossible to switch courses in a timely enough fashion to meet the state's emission goals.

Similarly, putting off emission reductions mutes the signal to policymakers and customers those long-term investments in clean distributed energy resources should be made now to help accelerate decarbonization across the electric, building, and transportation sectors. If CARB backslides on GHG emission reduction requirements in the next 10-12 years, this will signal weaker policy support for distributed energy resources and less incentive for customers to invest in those resources, at a time when the state should be conveying an imperative to accelerate DER deployment.

C. Conclusion

SEIA urges CARB to revise its Draft Scoping Plan prior to its adopting at the end of this year. The current draft does not provide a pathway which is stringent enough to meet the state's carbon emission reduction goals. Achievement of those goals has become increasingly critical as California is experiencing with increasing severity and frequency the impacts of climate change such as drought, wildfire, and extreme heat.

Sincerely,

/s/

Rick Umoff
Senior Director and Counsel, California
Solar Energy Industries Association

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22 *Id.*, p. 162

23 *Id*., pp. 162-163.

24 The Draft Scoping Plan recognizes those lead times could be 8 -10 years. *Id.,* p.163.