



December 16, 2016

California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Submitted electronically at www.arb.ca.gov/cc/scopingplan/scopingplan.htm

Re: Comments on the Second Update to the Climate Change Scoping Plan

To the California Air Resources Board:

On behalf of our 150,000 members in California, Sierra Club submits the following comments on the December 2, 2016 Discussion Draft 2030 Target Scoping Plan Update (“Discussion Draft”). Sierra Club appreciates the efforts of the Air Resources Board (“ARB”) in preparing the Discussion Draft and accompanying materials. Because the 2030 Target Scoping Plan “will serve as the framework to define the State’s climate change priorities for the next 14 years and beyond,”¹ it is critical the Scoping Plan set the appropriate expectations to scale up deployment of clean energy and build progress and momentum toward reaching California’s long-term 2050 climate goals. As the Discussion Draft properly recognizes, success in achieving the 2030 target “would help achieve the 2050 target earlier and potentially prevent global warming of 1.5° C.”²

Given that the purpose of the Scoping Plan is to “deliver strong policy signals that will continue to drive investment and certainty in a low-carbon economy,”³ Sierra Club is concerned that proposed 2030 pathways that rely on market-based mechanisms miss critical opportunities to

¹ Discussion Draft p. 7.

² Discussion Draft p. 30. California’s current emission reduction pathway, originally set in Exec. Order S-03-05, was intended to limit warming to 2°C. In light of improved scientific understanding of the significant impacts resulting from lower average temperature increases, the Paris Agreement calls for “[h]olding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.” (Art. 2. Sect 1 (a).) Limiting warming to 1.5°C requires accelerated achievement of California’s 2050 greenhouse gas reduction target.

³ Discussion Draft pp. 12-13.

spur development and deployment of clean energy technologies.⁴ In particular, the Draft Scoping Plan/Alternative 2 scenarios do not include any expectations for building electrification. Setting expectations for building electrification should not be delayed. Sierra Club recommends ARB include building electrification in all 2030 scenarios to signal the need and importance of policy support for a sector that is still in its relative infancy yet has enormous potential for job creation, emissions reductions, and the provision of renewable integration services.

Sierra Club is also concerned with the potential for overreliance on market mechanisms in the event identified policies and measures are not fully achieved. According to the Discussion Draft, a scenario where policies and measures do not achieve expected reductions would increase reliance on cap-and-trade to 40 percent of total 2030 emissions reductions. Even if cap-and-trade could legitimately achieve this high level of reduction, heavy reliance on market mechanisms misses the opportunity to invest in concrete policy measures that can reduce emissions and foster economic development. Sierra Club recommends increasing renewable expectations to 60 percent under the Draft Scoping Plan/Alternative 2 scenarios as already contemplated under Alternative 1. Because the renewables portfolio standard (“RPS”) is a well-established program with objectives that can be achieved with a high degree of certainty, increased renewable expectations will help ensure 2030 greenhouse gas reductions requirements are met should other policies and measures not perform as projected.

1. Building Electrification Measures Should Be Included in Both Alternative 1 and the Draft Scoping Plan/Alternative 2 Scenarios.

Widespread electrification of end uses that currently rely on natural gas is critical to achievement of California’s long-term climate goals.⁵ Sierra Club is concerned that heat pump electrification and the accelerated replacement of furnaces are only included in Alternative 1, the

⁴ The Discussion Draft describes two pathways to meeting the state’s requirement to reduce greenhouse gas pollution to at least 40 percent below 1990 levels by 2030: the Draft Scoping Plan/Alternative 2 scenarios that assumes current and some additional direct measures, with a market mechanism (cap-and-trade or carbon tax) delivering remaining reductions, and the Alternative 1 Scenario, which meets the entirety of the 2030 reduction requirement through direct measures without reliance on market mechanisms.

⁵ In a detailed analysis performed for the California Energy Commission, researchers at Lawrence Berkeley National Lab found that it was necessary to achieve full electrification of all space and water heating, in residential and commercial buildings, to meet the 2050 carbon goals. M. Wei et al., *Scenarios For Meeting California's 2050 Climate Goals*. Lawrence Berkeley National Lab (Sept. 2013), p. 80. <https://eetd.lbl.gov/sites/all/files/ca-2050-climate-goals.pdf>. Similarly, a report by the Deep Decarbonization Pathways Project corroborated this conclusion and found that electrifying natural gas end uses in buildings was essential in order to reduce greenhouse gas emissions to levels consistent with international climate goals. Williams, J.H., et al. (2014). *Pathways to deep decarbonization in the United States*. The U.S. report of the Deep Decarbonization Pathways Project of the Sustainable Development Solutions Network and the Institute for Sustainable Development and International Relations. Revision with technical supplement, Nov 16, 2015.

scenario without cap-and-trade. Because the policy and logistical barriers that currently hold back market transformation will not be overcome through a market signal from cap-and-trade, intentional work on removing barriers and setting expectations for fuel-switching must begin today. In deferring specific action on building electrification until 2030, the Draft Scoping Plan/Alternative 2 scenarios improperly signal that meaningful progress on electrification can wait. Sierra Club urges ARB to include electrification in all compliance scenarios to set needed statewide expectations on market transformation and to facilitate growth in an emerging clean energy sector ripe for expansion. Moreover, because electrifying heating and household appliances eliminates emissions from smaller point sources, incorporating electrification into all scenarios is consistent with the requirements of the goals of A.B. 197, which requires ARB to “prioritize . . . rules and regulations that result in direct emission reductions.”⁶

The intent of the 2030 Target Scoping Plan is to “put[] California on the path to meeting the 2050 GHG emission reduction goal,” with the recognition that “some policies for the long-term must begin implementation now.”⁷ Electrification is one of those long-term policies. Absent a shift in policy, new buildings constructed between now and 2030 will be oriented toward natural gas use. Similarly, gas heating and other gas-reliant appliances at the end of their lifespan would be replaced by similar gas-dependent technologies. These investments have long lifespans, and may continue to emit greenhouse gases in 2050. A more cost-effective, efficient approach is to begin gradually transitioning to electric infrastructure as soon as possible. As the researchers at the Deep Decarbonization Project write, “[s]tarting now . . . would allow infrastructure replacement to follow natural replacement rates, which reduces costs, eases demand on manufacturing, and allows gradual consumer adoption.”⁸ Waiting until 2030 to establish electrification goals will mean needless investment in and construction of fossil fuel reliant infrastructure and technology.

In addition, inclusion of electrification in all Scoping Plan scenarios is critical to helping jump-start California’s market for these essential technologies by identifying the economic and policy barriers that stand in the way of fuel-switching, and by establishing specific benchmarks and agency-wide policy directives to overcome these obstacles. In the same way that financial incentives are provided for electric vehicles or their home chargers, rebates may be needed temporarily to make heat pumps more economically attractive. The market for heat pump water heaters and heating and cooling systems is burgeoning, but still at an early stage. As a result, these electric technologies are in general more expensive than their natural gas versions. Many contractors do not have significant experience with installation, making them less likely to recommend electric appliances, and more likely to need extra time (and extra wages) to learn

⁶ Cal. Health & Safety Code § 38562.5.

⁷ Discussion Draft, p. 12, 30.

⁸ Williams 2014, p. xi.

how to install them.⁹ In addition, while electric heaters' efficiency means they have immediate greenhouse gas benefits, they may not result in immediate cost savings for all households due to unfriendly electric rate structures and, in some cases, significant costs to update electrical wiring.¹⁰

The Scoping Plan should identify current state policies that discourage or even prohibit these climate-friendly appliances, thereby encouraging other state agencies to make necessary changes. For example, Title 24 of the state building code values energy costs in a way that favors natural gas over electricity, even when gas appliances are less efficient.¹¹ Additionally, utility programs to incentivize the switch from gas to electric appliances are hampered by the California Public Utilities Commission's "3-prong test" for fuel substitution, which has vague requirements and lacks guidance on which test should be performed.¹² Policy barriers currently limiting electrification can be readily overcome. However, the political will and motivation to do so will be diminished if the adopted Scoping Plan does not signal the need for substantive progress on building electrification in the 2020 to 2030 timeframe.

Accordingly, Sierra Club urges ARB to amend the Scoping Plan to incorporate electrification of space and water heating into all compliance scenarios and to set specific benchmarks for natural gas appliance replacement and all-electric building construction. In this way, the Scoping Plan will set the stage for the needed transition to greater electrification, drive innovation, and make California a leader in this emerging market sector.

2. The Draft Scoping Plan/Alternative 2 Scenarios Should Assume 60 Percent Renewables to Hedge Against Uncertainty from Other Measures.

A 60 percent renewable requirement should be included in the Draft Scoping Plan/Alternative 2 Scenarios as an important hedge against overreliance on market mechanisms in the event of underperformance of the policies and measures that are currently identified in these scenarios. The Discussion Draft states that under an "Ideal Scenario," where identified greenhouse gas reduction policies and measures are deployed as expected, cap-and-trade would

⁹ See, e.g., TRC Solutions, *Palo Alto Electrification Final Report* (Nov. 16, 2016), p. 19.

<http://www.cityofpaloalto.org/civicax/filebank/documents/55069>

¹⁰ *Id.*, p. 15.

¹¹ For more information, see Sierra Club's Comments on the 2019 Draft Time Dependent Variable Updates (July 29, 2016), CEC Docket #16-BSTD-06.

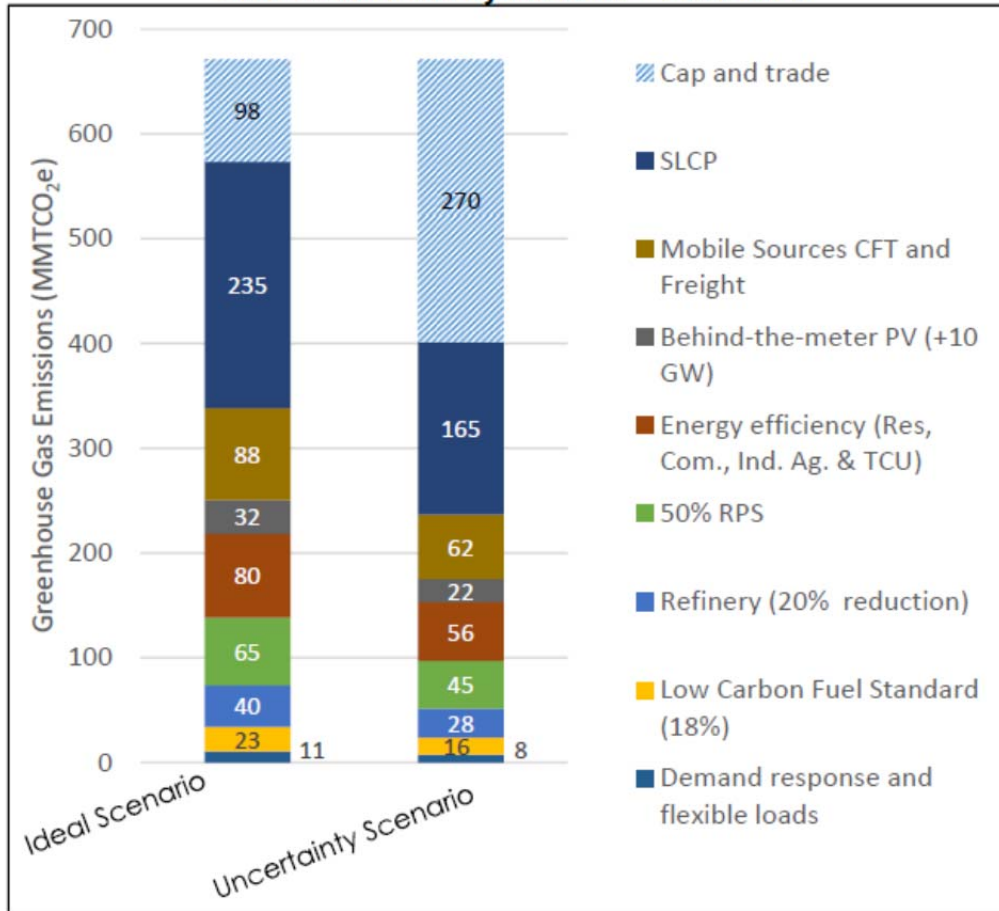
http://docketpublic.energy.ca.gov/PublicDocuments/16-BSTD-06/TN212515_20160729T160827_Rachel_Golden_Comments_Sierra_Club_Comments_on_2019_Draft_TDV_U.pdf

¹² For more information, see CPUC Energy Efficiency Policy Manual, Version 5 (July 5, 2013).

[http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy - Electricity and Natural Gas/EEPPolicyManualV5forPDF.pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/EEPPolicyManualV5forPDF.pdf)

account for about 15 percent of total greenhouse gas reductions between 2021 and 2030. However, as shown in the graph below, reliance on cap-and-trade would increase to 40 percent of total emissions reductions where policies do not perform as expected.¹³

Figure III-2. Draft 2030 Target Scoping Plan Scenario – Estimated Cumulative GHG Reductions by Measure – 2021-2030



It is unclear how the cap-and-trade program could legitimately deliver this high level of emissions reductions. While Sierra Club supports aggressive, achievable objectives for each economic sector, many of the measures that are identified in the Draft Scoping Plan/Alternative 2 scenarios are highly uncertain. For example the ability to feasibly achieve the sizable reductions the Scoping Plan attributes to future reductions in Short Lived Climate Pollutants (“SLCPs”) is unclear, especially given dairies cannot be required to reduce emissions until 2024. To guard against underperformance from other measures, the Draft Scoping Plan/Alternative 2 scenarios should signal the need for a 60 percent renewable requirement. Given that California’s investor owned utilities are currently contemplating little if any additional renewable procurement to meet a 50 percent RPS due to departing load, reduced demand, and banked

¹³ Discussion Plan p. 88.

credits, additional renewable procurement is a feasible measure with a track record of success that will help ensure ultimate achievement of 2030 greenhouse gas reduction requirements.

3. Aggressive Implementation of Electric Vehicle Strategies Are Needed to Meet Scoping Plan Objectives.

Sierra Club appreciates that the Scoping Plan recognizes the importance of vehicle electrification. We support the transportation goals in the Scoping Plan, but are concerned that state agencies are struggling to meet existing goals in this sector. This difficulty underscores the importance of taking action quickly on vehicle electrification. We strongly support these strategies, but urge ARB to adopt and enforce them more assertively to ensure compliance and to ensure that the state is able to meet its 2030 and 2050 goals.

The Scoping Plan references the policies laid out in the Governor’s Zero Emission Vehicle (“ZEV”) Action Plan (2016), the California Sustainable Freight Action Plan (2016), the Mobile Source Strategy (2016) and the Draft State Implementation Plan (2016). ARB needs to more aggressively develop strategies to meet these plans’ recommendations and goals and establish a clear timeframe. For instance, the Scoping Plan pays too little attention to strategies that will reduce vehicle miles traveled (“VMT”), despite reams of research established over the last two decades that point to reducing VMT as an essential element of cutting transportation emissions. Additionally, we appreciate the Scoping Plan’s recognition that the technology exists to switch to advanced clean transit by 2030. However, the agency’s implementation schedule for rulemaking is lagging.

Aggressive and specific strategies to meet existing goals are necessary to help the accelerating adoption of light-duty vehicle zero-emission technology pick up even more speed and go beyond existing goals. The Scoping Plan is right to recognize that we will need at least 1.5 million ZEVs in 2025, and 4.2 to 4.7 million in 2030. We believe that, with the right regulations and incentives, including those mentioned in the section on potential new measures on page 56, the ZEV goals could and should be increased to meet these higher targets.

4. The Scoping Plan’s Discussion of Natural and Working Lands Should Acknowledge the Role of Fire in Lands Management and the Importance of Natural Lands in Providing Habitat.

We appreciate the recognition in the Scoping Plan of the important role played by working and natural lands in the carbon cycle. However, the Scoping Plan’s proposals for working and natural lands fall short in a few ways. It does not adequately acknowledge and include consideration of the need to incorporate fire into natural lands management. One might

mistakenly get the impression from the Scoping Plan that all fires within forests must necessarily be suppressed, even though fire is generally recognized as an important forest management tool.

The important role that forests and other natural lands play as wildlife habitat and, as climate changes habitat availability, refuge for migrating wildlife, is underemphasized. The Scoping Plan should overtly acknowledge that forests and other natural lands must be actively protected to provide that habitat, and that protection involves appropriate, active management that may include fire.

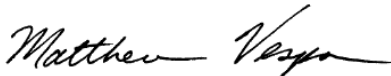
Additionally, in the table on page 64 of the Discussion Draft, it is unclear how the acreage figures associated with different levels of management and restoration for different activities were arrived at. In any case, the figures for how many acres of cropland might be managed to improve carbon sequestration appear to be excessively low and should be increased.

Sierra Club appreciates the opportunity to submit these comments and looks forward to working with ARB to achieve California's 2030 greenhouse gas reduction requirements.

Sincerely,



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