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Ms. Ariel Fidely
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California Air Resources Board
1001 I Street,
Sacramento, CA 95814

Re: Comments on California Air Resources Board’s Draft 2022 State Strategy for State Implementation Plan (SIP) Environmental Analysis (EA)

The Western States Petroleum Association (WSPA) appreciates the opportunity to comment on the Draft 2022 State SIP Strategy EA,¹ which was released on March 29. WSPA is a non-profit trade association that represents companies that export for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states, and has been an active participant in air quality planning issues for over 30 years.

To meet the State’s emission reduction goals and attain the federal health standards, it is important that a broad, technology-inclusive approach be reflected in the SIP. The proposed Draft 2022 SIP Strategy relies predominantly, if not exclusively, on zero emission vehicle (ZEV) technologies. This approach will leave the SIP vulnerable to not meeting California’s emission reduction requirements because its all-ZEV strategy will fall short due to unaddressed technical concerns about infrastructure and vehicle availability.

1. The 2020 State SIP Strategy’s inclusion of new objectives that introduce and require accelerated penetration of zero emission vehicles and technologies have demonstrably undermined strategies with greater and faster emission reductions.

The purpose of the State SIP Strategy has historically and legislatively been to develop emission reduction strategies that bring the State’s nonattainment areas into compliance with the federal ozone standard. However, within the Draft EA for the 2022 Draft State SIP Strategy, CARB includes two new objectives to “introduce zero-emission (ZE) technology in targeted applications to achieve CARB’s SIP goals” and to “establish manufacturer and fleet ZE technology requirements to accelerate the penetration of ZEV fleets to achieve CARB’s SIP goals”. Because of these objectives, CARB has developed a strategy that focuses nearly entirely on the

¹ CARB Draft 2022 State Strategy for State Implementation Plan Draft Environmental Analysis. March 29, 2022. Available at: https://ww2.arb.ca.gov/sites/default/files/2022-03/2022_SSS_Appx_B_Draft_EA.pdf. Accessed: May 2022.

deployment of ZEVs, despite the uncertainties of vehicle/infrastructure availability and the knowledge that emission benefits will only be realized during the late years of the programs.

The legislatively mandated purpose of the 2022 State SIP Strategy is to develop emission reduction strategies in conjunction with local air districts to bring the State's nonattainment areas into compliance with the federal ozone standard. Yet CARB recognizes that an additional 47 tons per day (tpd) of NO_x emission reductions will be required in the South Coast by 2037 beyond those identified in the Draft 2022 State SIP Strategy.

As mentioned in WSPA's March 4th comment letter, the current Draft 2022 State SIP Strategy does not provide a clear pathway to meeting the federal ozone standard, mainly due to an over-reliance on ZEV technologies. By refusing to discuss the broader use of lower-emitting internal combustion engine (ICE) technologies and fuels, CARB is leaving potential near-term emission reductions on the table and actively delaying attainment in the South Coast.

2. CARB must provide and analyze emission-reducing liquid/gaseous-fueled combustion technology alternatives, such as those in the approved 2016 SIP.

As stated in the March 4th comment letter, the Draft 2022 State SIP Strategy does not appear to deliver the emission reductions which had been promised under the 2016 State SIP Strategy because CARB abandoned key advanced technology measures that would reduce near-term NO_x emissions from ICE vehicles. Instead, the proposed strategy prioritizes certain longer-term policies at the expense of pathways that could attain the ozone standards set by the Federal Clean Air Act.

WSPA requested that CARB perform an analysis similar to Ramboll's Heavy Heavy-Duty Truck (HHDT) case study to evaluate how the abandoned strategy of low NO_x technologies coupled with renewable liquid and gaseous fuels could provide greater reductions of NO_x emissions from key sectors on an earlier timeline than the ZEV-centric pathway provided.

The Ramboll case study showed that if CARB had implemented policies that encouraged the near-term adoption of zero-emission and low-NO_x HHDT as it committed to in the 2016 State SIP Strategy, CARB could have reduced NO_x emissions from this major NO_x source by greater amounts in comparison to CARB's current ZEV-centric approach (See Table 1 below).

Table 1

Estimated NOx Reduction Comparison (% Reduction) – CARB Draft 2022 SIP vs. Ramboll HHDT Study		
Year	CARB Draft 2022 SIP	Ramboll HHDT Case Study
2023	<1%	22%
2031	42%	63%
2037	71%	80%

It also showed that multi-technology approaches, which would require significantly less new infrastructure (whose cost and other impacts CARB has not completely understood) and vehicle

costs, still match the NO_x emission reductions CARB has set for this major sector. (See Attachment A)

Instead of evaluating this strategy, CARB has provided alternatives in which portions of the 2022 State SIP Strategy measures are not implemented. This presented material does not satisfy the requirement that CARB evaluate all potential strategies to reduce significant environmental impacts, as required under the California Environmental Quality Act (CEQA). CARB must give proper consideration to these technology options to fulfil its obligation to facilitate compliance with the federal ozone standard.

3. By not conducting an alternative analysis of technologies other than ZEVs, CARB does not analyze the cost effectiveness of this proposed pathway in comparison to other technology options.

The transition to ZEV technology will require an overhaul of the State's transportation system and electric grid infrastructure, the likes of which is unprecedented and not analyzed in the Draft 2022 State SIP Strategy EA. The 2018 E3 Deep Decarbonization in a High Renewables Future Report (2018 E3 Report)² estimates that the cumulative cost for electric grid infrastructure development and maintenance for a high electrification scenario that includes the deployment of 35 million ZEVs is \$1.55 trillion from 2026-2050. This value further grows when necessary developments in battery manufacturing and recycling, critical mineral mining and exports, construction/operation of facilities to support zero-emission (ZE) technologies, and construction of new electricity generation facilities and electricity infrastructure are taken into account. Ramboll's "Transportation Electrification" study projected that the cumulative transportation infrastructure costs (generation, transmission, distribution, maintenance and electric vehicle chargers) from 2020 to 2050 to achieve a statewide on-road ZEV fleet could be at least \$2.1 to \$3.3 trillion (See Attachment B). CARB does not provide estimates of these potential impacts. As a result, stakeholders cannot appreciate the true magnitude of the proposed actions under the Draft 2022 State SIP Strategy or how these impacts could be mitigated by a technology-neutral alternative.

Emission-reducing liquid/gaseous-fueled combustion technology alternatives, such as those in the approved 2016 SIP have been demonstrated to be technologically feasible and cost effective. As discussed in WSPA's previous comment letters, low-NO_x and lower-carbon intensity (CI) drop-in fuels, such as renewable gasoline, bioethanol, renewable diesel, biodiesel, and renewable natural gas (RNG), could be used in new or existing vehicles. These fuels would utilize much of the existing fueling infrastructure, thus minimizing any near-term costs associated with infrastructure development while also providing critical near-term emission reductions.. Low-CI fuels have the potential to be an economically feasible pathway to achieving the State's GHG and

² The grid infrastructure costs accounted for in the 2018 E3 Report include: capital, operations and maintenance (O&M), administrative, and taxes. Available at: <https://www.ethree.com/wp-content/uploads/2018/06/Deep-Decarbonization-in-a-High-Renewables-Future-CEC-500-2018-012.pdf>. Accessed: May 2022.

air quality targets on an accelerated timeline, yet continue to be wrongfully excluded from any of CARB's regulatory strategies.

Conclusion

Links to our previous comments on the 2020/2021 MSS and 2022 SIP have been included as Attachment B for reference. Many of the comments and issues raised in those letters continue not to be addressed in the 2022 State SIP Strategy and its EA.

WSPA supports and recommends that CARB include greater scope for low-NOx vehicle and equipment technologies in its 2022 SIP Strategy to meet its commitments and not simply act within the narrow reading of the Governor's Executive Order N-79-20³ that would lead to a failure to meet the emission reductions required for ozone attainment in areas throughout the State. We believe the current path that CARB is pursuing with solely zero emission vehicles is going to miss an opportunity for immediate emission reductions and significant air quality benefits from technologies that currently exist. WSPA would welcome the opportunity to discuss these comments in more detail. Thank you for consideration of our comments in this letter. If you have any immediate questions, please feel free to contact me at jverborg@wspa.org. We look forward to working with you on these important issues.

Sincerely,



James Verburg
Director, Fuels



cc: Ms. Ariel Fideldy – California Air Resources Board – Air Quality Planning and Science Division

Attachment A – Ramboll HHDT Case Study (brief summary and previous submittal links)

Attachment B – Ramboll Transportation Electrification Case Study (brief summary and previous submittal link)

Attachment C – Links to previous MSS and 2022 SIP comment letters

³ California Executive Order N-79-20. September 23, 2022. <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf>. Accessed: May 2022.

Attachment A – Ramboll HHDT Case Study

Ramboll conducted an analysis of one specific sector within the MSS, California’s HHDT fleet, to identify multiple vehicle technology and fuel pathways that could achieve these near-term air quality goals while being consistent with the meeting of the state’s long-term climate goals. The multi-technology analysis of the HHDT sector in this report began in June 2020 after the original CARB 2020 MSS presentation in March 2020. The main conclusions of our analysis are summarized below:

- Expanded implementation of zero-emission and Low-NOX vehicles, coupled with increased introduction of renewable liquid and gaseous fuels, can deliver earlier and more cost-effective benefits than a ZEV-only approach.
- As advanced low-emitting trucks are commercially available to deliver benefits to communities sooner, multi-technology pathways can help achieve emission reductions without reliance on infrastructure and technology upgrades that will take years to resolve.
- There is a growing potential for renewable fuels, including those with negative carbon intensity, to meet achieve GHG reductions, which CARB has not acknowledged fully in the MSS nor assessed the potential for early and cost-effective GHG reductions through these multi-technology vehicle pathways.
- Low-emission heavy-heavy-duty trucks are cost-competitive with (or cheaper than) battery electric vehicles (BEVs). This is true even though battery technology promises (such as greater energy density/lower cost) have not been adequately demonstrated and related transmission/distribution infrastructure cost have not been included in the state’s analyses.

This report has been submitted to the following comment dockets:

1. CARB 2022 Scoping Plan Update. July 7, 2021. Available at: <https://www.arb.ca.gov/lists/com-attach/80-sp22-concepts-ws-AmNWJVA2VFgEM1Bn.pdf>
2. CARB Advanced Clean Fleets (ACF) Regulation. April 17, 2021. Available at: <https://www.arb.ca.gov/lists/com-attach/36-acf-comments-ws-UCdTJIUkAzFVDFMy.pdf>
3. CARB 2022 State Implementation Plan. March 3, 2022. Available at: www.arb.ca.gov/lists/com-attach/13-draft2022statesip-ws-AHdVIAR1BTdQCQZl.zip

Attachment B – Ramboll Transportation Electrification Case Study

The large-scale conversion of the statewide on-road vehicle fleet to a zero-emission fleet, as proposed by the California Governor’s Executive Orders (EO) B-16-2012, B-48-18, and N-79-20, would require a major shift in the transportation energy sector from fossil fuels to electricity and/or renewable hydrogen. In this meta-study, Ramboll estimates the costs associated with purchase and installation of electric vehicle charging infrastructure as well as upgrades to California’s electric grid that would be needed to meet the zero-emission vehicle (ZEV) targets laid forth in these EOs based on published literature. This included studies published by the California Energy Commission (CEC), Princeton’s Net Zero America Report, CARB’s MSS, and South Coast Air Quality Management District (SCAQMD).

Based on our analysis of these third-party studies, the cumulative transportation infrastructure costs (generation, transmission, distribution, maintenance and electric vehicle chargers) from 2020 to 2050 to achieve a statewide on-road ZEV fleet are projected to be at least \$2.1 to \$3.3 Trillion. This is equivalent to 12%-18% the 2019 gross domestic product (GDP) of United States of America. It is also roughly equivalent to the entire 2019 GDP of the United Kingdom or, alternatively, France.

This estimate included purchase and installation costs for electric vehicle charging infrastructure to achieve a 93% statewide on-road light duty ZEV fleet and a 100% medium-/heavy-duty ZEV fleet by 2050, in line with State projections for fleet electrification and the Governor’s EO mandates. It also included estimated grid infrastructure investments (i.e., generation, transmission, distribution) required to support increased grid loads and renewable energy targets, noting that such estimates are underestimated since they only accounted for infrastructure to electrify 18% of the in-state medium-duty/heavy-duty (MD/HD) fleet to BEV (short of the State’s 100% zero emission target) and did not include grid infrastructure costs to support electrification of the remaining 6.1 million in-state medium- and heavy-duty vehicles.

This report has been submitted to the following comment dockets:

1. CARB Scoping Plan Update. September 7, 2021. Available at:
<https://www.arb.ca.gov/lists/com-attach/80-sp22-concepts-ws-AmNWJVA2VFgEM1Bn.pdf>

Attachment C – Links to previous MSS and 2022 SIP comment letters

2022 Draft SIP Strategy

Comments on Draft 2022 State SIP Strategy – March 3, 2022:

www.arb.ca.gov/lists/com-attach/13-draft2022statesip-ws-AHdVIAR1BTdQCQZI.zip

2020/2021 Mobile Source Strategy (MSS)

Comments on Proposed 2020 MSS (Board Hearing) – October 18, 2021:

https://www.arb.ca.gov/lispub/comm/iframe_bccomdisp.php?listname=2020mobilesourcestrat&comment_num=9&virt_num=9

Comment on Revised Draft 2020 MSS – May 14, 2021:

https://ww2.arb.ca.gov/sites/default/files/2021-05/9-WSPA_Comment_RevisedDraft2020MobileSourceStrategy.pdf

Comments on Draft (Board Hearing) MSS – December 7, 2020:

https://www.arb.ca.gov/lispub/comm/iframe_bccomdisp.php?listname=mobilesourcestrat20&comment_num=5&virt_num=5

Comment on Draft 2020 MSS – October 21, 2020:

https://ww2.arb.ca.gov/sites/default/files/2020-11/WSPA_Comment-WorkshopDiscussionDraft2020MSS.pdf

Ramboll HHDT Case Study:

<https://www.arb.ca.gov/lists/com-attach/78-sp22-kickoff-ws-B2oFdgBtUnUAbwAt.pdf>

https://www.arb.ca.gov/lispub/comm2/iframe_bccomdisp.php?listname=sp22-kickoff-ws&comment_num=78&virt_num=57