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(Submitted by email to Ariel.Fideldy@arb.ca.gov)

Ms. Ariel Fideldy
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Re: Comments on California Air Resources Board's Revised Draft 2020 Mobile Source Strategy

The Western States Petroleum Association (WSPA) appreciates the opportunity to comment on the May 6th 2021 public workshop on the Revised Draft 2020 Mobile Source Strategy (Revised Draft 2020 MSS),¹ which was released on April 23rd, 2021. 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.

Western States Petroleum Association (WSPA) recognizes the challenges that California and California Air Resources Board (CARB) face in meeting its air quality improvement and greenhouse gas reduction goals. However, WSPA notes with great concern that the Revised Draft 2020 MSS continues to fail to satisfy SB 44 obligations and does not address any of the concerns that were raised in our earlier comment letters dated October 21st 2020² and December 7th 2020.³

1. Revised Draft 2020 MSS Fails to Address Near-Term Federal Clean Air Act Emission Commitments

WSPA noted in our October 21, 2020 comment letter that the Draft 2020 MSS dated September 30th 2020, failed to address the near term (2023-2031) emission reductions required to meet the national ambient air quality standards (NAAQS) for ozone as well as particulate matter in the South Coast Air Basin (SCAB) and San Joaquin Valley Air Basin (SJVAB). On December 10, 2020 the CARB Board noted that "we need a clear near-term path to secure emission reductions that meet federal air quality standards this decade" and that CARB staff should focus their efforts on reducing emissions "as quickly as possible". The Board specifically directed Staff to review all

¹ Revised Draft 2020 Mobile Source Strategy. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-04/Revised_Draft_2020_Mobile_Source_Strategy.pdf. Accessed: May 2021.

² WSPA Comment letter on the September 30th, 2020 MSS Discussion Draft. Available at: https://ww2.arb.ca.gov/sites/default/files/2020-11/WSPA_Comment-WorkshopDiscussionDraft2020MSS.pdf. Accessed: April 2021.

³ WSPA Comment letter on Draft 2020 Mobile Source Strategy. Available at: <https://www.arb.ca.gov/lists/com-attach/5-mobilesourcestrat20-VGZRZ11uAGMDWgdk.pdf>. Accessed: April 2021.

available strategies and add actions to address these near-term emission reductions in an updated version of the MSS.⁴

While the Revised Draft 2020 MSS includes a new Chapter 4 titled “CARB Actions to Achieve Near Term Emission Reductions”, it still fails to achieve the near-term emission reductions needed in SCAB and SJV. The Revised Draft 2020 MSS states that in order to meet the 8-hour ozone standards in the SCAB, an additional 108 tons/day and 88 tons/day of NO_x emission reduction are required (by 2023 and 2031) beyond what is committed to in the SIP. In SJVAB, an additional 13 tons/day of NO_x and 0.1 tons/day of PM_{2.5} emission reduction are needed to meet the 2024 and 2025 targets respectively. CARB points to already adopted regulations, such as the Innovative Clean Transit (ICT) regulation, the Advanced Clean Trucks (ACT) regulation, and Low NO_x Omnibus regulation, and proposed regulations such as Advanced Clean Fleet (ACF) regulation, Heavy Duty Inspection and Maintenance Program (HD I&M), and Advanced Clean Cars II (ACC II) regulations, as measures that will help achieve near-term emission reductions. (See Table 8 below, which is taken from the Revised Draft 2020 MSS document.) The adopted and proposed MSS measures are only projected to deliver 6.6 tons/day of NO_x reductions by 2023 in SCAB, which is just 6% of the 108 tons/day of NO_x reductions needed by 2023. CARB still has not addressed how it plans to achieve the shortfall in SCAB.

CARB’s narrowly focused approach continues to ignore the importance of near-term criteria pollutant emission reductions in the recently adopted ACT and proposed ACF regulation and in doing so, has failed to address a specific mandate from the Board to secure near-term emission reductions that meet federal air quality standards. CARB’s strategy disincentivizes the increased use of Low-NO_x technologies that were key to the 2016 MSS State Implementation Plan (SIP) attainment demonstration. Under the Revised Draft 2020 MSS, CARB would walk away from its 2016 SIP commitments, leaving the state’s non-attainment areas and disadvantaged communities without appreciable air quality improvements for at least another decade.

It is imperative that CARB reflect the urgency of addressing criteria emissions now. We offer recommendations in Section 3.

⁴ CARB December 10, 2020 Board Meeting. Available online: <https://cal-span.org/unipage/?site=cal-span&owner=CARB&date=2020-12-10>. Accessed: May 2021.

Table 8 - Overall NOx (tpd) Emissions Reductions in South Coast (SC) and San Joaquin Valley (SJV) for Mobile Source Measures (Adopted and In-progress)

Measures	Adoption	Implementation	SC 2023	SJV 2024	SC 2031
Amendments to HDVIP and PSIP*	2018	2019	N/A	N/A	N/A
Innovative Clean Transit*	2018	2023	<0.1	<0.1	0.2
South Coast On-Road Heavy-Duty Vehicle Incentive Measure*	2018	2019	1	N/A	N/A
San Joaquin Valley Agricultural Equipment Incentive Measure**	2019	2015	N/A	5.9	N/A
Zero-Emission Airport Shuttle*	2019	2027	<0.1	<0.1	<0.1
Ocean Going Vessels At Berth*	2020	2024	1.1	<0.1	3.6
ACT and Heavy-Duty Omnibus*	2020	2024	<0.1	<0.1	7
U.S. EPA CTI*	2021	~2027	0	0	4
Commercial Harbor Craft	2021	2023	0.9	<0.1	2.9
Heavy-Duty I/M**	2021	2024	3.5	11	18
Zero-Emission Drayage and Advanced Clean Fleet	2021	2023	0	<0.1	6-10
Small Off-Road Engines*	2021	2024	0	<0.1	2.8
Transport Refrigeration Unit*	2021	2024	0	<0.1	0.4
In-Use Locomotive	2022	2024	0	0.4	7
Advanced Clean Cars II*	2022	2026	0	0	3.2
Zero-Emission Forklift*	2022	2025	0	0	3.7
Cargo Handling Equipment	TBD	TBD	0.1	<0.1	0.9
Construction & Mining	TBD	TBD	<0.1	<0.1	3.4
TOTAL			6.6	17.3	63-67

* Identified in 2016 State SIP Strategy

** Identified in San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan⁷²

2. The Revised Draft 2020 MSS Fails to Meet SB 44 Obligations

As with previous draft 2020 MSS versions, CARB continues to state that the 2020 MSS concepts are “consistent with Executive Order N-79-20 and SB 44”. However, the Revised Draft 2020 MSS still does not satisfy requirements under SB 44 since it **fails to include a comprehensive strategy** for the deployment of medium-duty and heavy-duty vehicles **to help meet federal ambient air quality standards and reduce greenhouse gas (GHG emissions)**. The Revised Draft 2020 MSS fails to consider multi-technology solutions that could achieve both near-term air quality and long-term climate goals in a likely more cost-effective manner, and lacks a cost-benefit analysis to objectively and transparently develop a strategy for medium- and heavy-duty vehicles.

Further, the Revised Draft 2020 MSS **does not present reasonable and achievable goals** to achieving emission reductions, lacking explicit policies and measures to meet upcoming federal ambient air quality deadlines in SCAB and SJVAB. In presenting “concepts” in lieu of measures and modeling scenarios that are only technically possible under “optimal policy and market conditions” the Revised Draft 2020 MSS fails to offer a comprehensive strategy with reasonable and achievable pathways to meet California’s goals.

3. The Revised Draft 2020 MSS Fails to Properly Analyze and Consider Viable Alternatives Including Multi-Technology/Fuel Pathways as Required by SB 44

CARB does not explore any multi-technology or multi-fuel scenarios in the Revised Draft 2020 MSS and instead focuses exclusively on forcing a ZEV-centric approach. WSPA previously noted in our October 21st 2020 comment letter (and reiterated this point in our December 7th 2020 comment letter) the potential uncertainties (technology and costs) associated with battery electric vehicle technology, as well as the potential benefits of renewable liquid and gaseous fuels in Low-NOx vehicles as a means to achieve earlier and more cost-effective benefits.

Alternative fuels have an increasing potential to contribute significantly to achieving the State's greenhouse gas goals. When combined with Low-NOx vehicle technologies, they also deliver air quality benefits which are available now (i.e., most alternative fuels are "drop-in"). At a minimum, CARB needs to consider the following alternative fuels in their assessment of potential multi-fuel and multi-technology pathways:

- Renewable natural gas (solely or in combination with traditional natural gas)
- Renewable hydrogen (solely or in combination with traditional hydrogen)
- Lower carbon petroleum fuels
- Renewable diesel
- Renewable gasoline
- Ethanol
- Biodiesel
- Synthetic fuels
- Advanced biofuels (e.g. cellulose)
- Electricity (accounting for renewable and non-renewable sources)

CARB's assessment should reflect the potential future carbon intensity (CI) of each fuel, as well as the resulting lifecycle emission reductions that could be achieved.

WSPA commissioned Ramboll to perform a case study of potential multi-technology/multi-fuel scenarios for the statewide heavy-heavy duty vehicle sector. A copy of that analysis is attached to this comment letter. The Ramboll analysis showed that various multi technology/fuel scenarios can more effectively contribute to the State's near-term air quality obligations while also meeting long-term climate objectives. For example, a mix of Low-NOx vehicles and renewable fuels, which are available now, could deliver reductions required in SCAB and SJVAB. In addition to being able to provide air quality benefits sooner, the technology neutral scenarios could be achieved at much lower cost.

WSPA, and its consultant Ramboll, welcome the opportunity to discuss these issues with CARB staff and provide further detail on the multi-technology/multi-fuel scenarios assessed in the study.

4. Increased use of Renewable Fuels Could Provide GHG Reductions with Greater Certainty than the Proposed VMT Reduction Policies

The Revised Draft 2020 MSS proposes eight (8) strategy areas to reduce VMT to achieve further GHG emission reductions. The strategy areas do not yet provide specific measures that CARB could take to reduce VMT. While we agree that addressing VMT must be on the table, historical actions to reduce VMT have proven difficult in practice. For example the SB 375 statute set targets to reduce statewide per-capita VMT by 13-18% by 2035,⁵ however per capita VMT has actually grown since the introduction of this statute.⁶

Again, we emphasize that an approach that includes renewable and lower-carbon liquid and gaseous fuels (many of which, as noted in Comment #3 above, are presently available in the near term and are “drop-in”) would allow for a reliable and immediate reduction of vehicle GHG emissions from ICE vehicles.

5. The Revised Draft 2020 MSS Lacks a Robust Cost and Funding Analysis

The Revised Draft 2020 MSS does not include a cost and funding analysis that had been previously requested by WSPA and other stakeholders. In lieu of a cost analysis, the MSS presents the existing incentive program for fleet transition to zero emission vehicles (ZEVs). CARB has not conducted a complete cost analysis and cost-effectiveness assessment for a transition of California’s onroad fleet to ZEVs. This must include all of the infrastructure costs which would be necessary under CARB’s ZEV-centric scenario. Without a robust analysis of the costs necessary to support each pathway, it is impossible to understand the efficacy of these incentive programs to support the MSS. Please refer to Comment #6 below for further concerns identified regarding electric grid infrastructure upgrade costs.

6. The Revised Draft 2020 MSS Completely Ignores Future Electric Grid Reliability and Readiness of Infrastructure Needed for a ZEV Transition

As mentioned in WSPA’s October 21st 2020 comment letter, there exists significant concern from stakeholders regarding the electric grid’s reliability and readiness to support a full-scale transition to ZEVs. In the Revised Draft 2020 MSS, CARB points to existing incentive programs to support fueling infrastructure but has still not addressed the more significant concerns with overall grid reliability and readiness. It has also failed to consider additional costs associated with vehicle chargers, associated charging infrastructure, or investments that have to be made to support a high renewables grid with additional transportation loads.

A study commissioned by the California Energy Commission (CEC) on Deep Decarbonization in a High Renewables Future^{7,8} estimated that the total cumulative grid infrastructure costs

⁵ CARB SB 375 Regional Plan Climate Targets. Available at: <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>. Accessed May 2021

⁶ 2018 Progress Report on California’s Sustainable Communities and Climate Protection Act (SB 375). Available at https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf. Accessed May 2021

⁷ E3 2018 Deep Decarbonization PATHWAYS Report. Available at: <https://www.ethree.com/projects/deep-decarbonization-california-cec/>. Accessed April 2021.

⁸ E3 PATHWAYS Technical Appendix https://www.ethree.com/wp-content/uploads/2017/02/California_PATHWAYS_Technical_Appendix_20150720.pdf. Accessed April 2021.

(i.e., generation, transmission, distribution) required to meet the State's 2030 GHG target of 40% reduction from 1990 levels would be \$0.52 trillion from 2020 to 2030 under the modeled high electrification scenario. It also estimates a cumulative cost of \$1.82 trillion dollars from 2020 to 2050 to meet the State's 2050 GHG target of 80% reduction from 1990 levels (i.e., the high electrification scenario). These costs are likely underestimated, since the high electrification scenario in the CEC Study only assumed an 18% penetration of ZEV in the in-state MD/HD vehicle fleet by 2050, as compared to the Revised Draft 2020 MSS which assumed that 65% of in-state MD vehicles and 76% of in-state HD vehicles would be ZE by 2045. Further, the CEC cost estimates do not include vehicle charging infrastructure. These potential costs would be significant to the California economy, both public and private.

The Revised Draft 2020 MSS fails to provide an assessment of the true costs and cost-effectiveness of a transition to a 100% in-state ZEV fleet. It is imperative that CARB assess the costs of their proposed ZEV scenario in the Revised Draft 2020 MSS and evaluate alternative multi-technology/fuel scenarios which could provide a more cost-effective means to achieving California's air quality and climate goals.

7. The Revised Draft 2020 MSS Does not Reflect the Potential Role of Cap-and-Trade in Reducing Future GHG Emissions

WSPA's October 21st 2020 comment letter notes the importance of the Cap-and-Trade program in helping the State meet its GHG emission reduction goals, and recommends that CARB account for the GHG emission reductions from this program when modeling the 2020 MSS. The Revised Draft 2020 MSS still does not account for the contributions from the Cap-and-Trade program and is therefore incomplete.

8. Revised Draft 2020 MSS Does Not Conduct a Feasibility Assessment of the ZEV-Centric Pathway or Proposed Accelerated ZEV Turnover

CARB's Revised Draft 2020 MSS relies upon an accelerated ZEV turnover scenario to achieve the estimated emission reductions. For instance, CARB has assumed ZEV sales of heavy-duty vehicles would increase to 100% by 2035, well beyond what the current Advanced Clean Truck (ACT) rule mandates. In light of significant gaps in presently-available ZEV technology (especially for HHDTs), current real-world examples of mismatch in technology readiness levels from various transit agencies under CARB's Innovative Clean Transit (ICT) rule (documented in WSPA's comment letter dated October 21st 2020), and numerous stakeholder concerns regarding the inability of ZEV heavy-duty vehicles to meet the operating needs of fleet owners, it is imperative that CARB conduct a feasibility study demonstrating that the aggressive ZEV turnover assumed by the Revised Draft 2020 MSS concepts is indeed achievable in the real world and is a feasible pathway forward.

For example, the production of batteries used in BEVs is reliant on a short and specific list of materials, seven of which are on the US Department of Interior Critical Minerals List:⁹ lithium, graphite, aluminum, manganese, cobalt, rare earth elements, and platinum group metals. As

⁹ Final List of Critical Minerals 2018, Department of the Interior. Available at: <https://www.federalregister.gov/documents/2018/05/18/2018-10667/final-list-of-critical-minerals-2018>. Accessed May 2021

CARB acknowledged during the ACC II Workshop on May 6th, 2021,¹⁰ global reserves of nickel, manganese, and cobalt would only last for approximately 50 years at the rates of production in 2020. With CARB's proposed mandate for large-scale BEV deployment, it is not clear how the increased demand for battery production (and therefore, critical minerals which are in dwindling supply) will be addressed. For example, data on cobalt reserves showed that the depletion rates of lithium and cobalt doubled between 2010 and 2020. CARB further notes that battery recycling would be "critical in the long term" to support the large-scale demand for EV batteries, but does not address the feasibility of this proposal given logistical, infrastructure, technological and economic barriers involved in battery recycling and reuse.

It is imperative that CARB critically assess the feasibility of battery production and recycling when proposing aggressive vehicle electrification in the Revised Draft 2020 MSS (i.e., 85% of the LDV fleet, 65% of the MDV fleet, and 76% of the HDV comprising ZEVs in 2045). CARB must perform a detailed analysis of the long-term availability of critical minerals, the immediate investments required to scale up battery recycling technology, and logistical and incentive actions needed to achieve successful battery recycling within the State. CARB may be creating a scarcity of mineral resources with their ZEV-centric approach to meeting state and federal air quality and GHG goals.

9. Revised Draft 2020 MSS Does Not Incorporate the Impact of Lost Revenues from Fuel Taxes

WSPA has previously noted that the ZEV-centric approach proposed by the MSS would reduce state tax revenue sources from gasoline and diesel fuel sales. The reduction in state-wide fuel consumption would result in potential losses of approximately \$5.6 billion from gasoline fuel taxes and \$1.9 billion from diesel fuel taxes (assuming current tax rates).¹¹ CARB continues to ignore these lost state tax revenues resulting from their MSS scenarios and the potential effect this would have on the funding need to maintain and develop its transportation infrastructure and public transportation. CARB must evaluate how the State would overcome this shortfall amidst increasing investment requirements for charging and grid infrastructure developments to support a ZEV transition.

Conclusion

Thank you for consideration of our comments. We would welcome the opportunity to discuss these ideas in more detail. If you have any immediate questions, please feel free to contact me at troberts@wspa.org. We look forward to working with you on these important issues.

¹⁰ Public Workshop for Advanced Clean Cars II. Available at: <https://ww2.arb.ca.gov/events/public-workshop-advanced-clean-cars-ii>. Accessed: May 2021.

¹¹ State excise and other taxes were assumed to be 61 cents per gallon (cpg) for gasoline fuel and 86 cpg for diesel fuel as of 1/1/2020. Data obtained from the American Petroleum Institute State Motor Fuel Taxes, available online at: <https://www.api.org/~media/Files/Statistics/StateMotorFuel-OnePagers-January-2020.pdf>. Accessed: October 2020.

Sincerely,

A handwritten signature in blue ink that reads "Tiffany K. Roberts". The signature is written in a cursive style with a large initial 'T'.

Tiffany K. Roberts,
Vice President, Regulatory Affairs
Western States Petroleum Association

Attachment: "Multi-Technology Pathways To Achieve California's Air Quality And Greenhouse Gas Goals: Heavy-Heavy-Duty Truck Case Study", Ramboll (February 2021)