August 27, 2020

California Air Resources Board
1001 I Street
Sacramento, California 95814

Re: WSPA Comments on CARB's Heavy -Duty Low NO_x Omnibus Rule

Western States Petroleum Association (WSPA) is a trade association that proudly represents companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas, and other energy supplies in California and four other western states. Currently 152,000 men and women have careers in the oil and gas industry in California and 366,000 people have careers whose jobs depend on the industry. The industry in California contributes $152 billion every year in economic activity and directly contributes $21.6 billion in local, state, and federal tax revenue to support schools, roads, public safety and other vital services.

We appreciate the opportunity to share the below feedback on the proposed Heavy-Duty Low NO_x Omnibus Rule.

CARB Should Ensure Place for Low NO_x Engines…But Approach to Rulemaking Should Be Comprehensive, Not Piecemeal

WSPA believes regulations should be technology/fuel neutral and that the state should create an even playing field so that all technologies are allowed to compete to meet the needs of the state. Lower emission diesel, renewable diesel and bio-diesel, natural gas, hybrid powertrains and renewable natural gas vehicles should be able to compete on an equal footing, with the goal of achieving the targeted NO_x and GHG emission reductions.

The proposed adoption of ultra-low standards for trucks makes another step-change reduction in truck NO_x emissions. Although today's consideration is about truck standards, the fuel powering these engines is part of the equation to deliver these lower emissions. WSPA companies provide ultra-low sulfur, CA-quality diesel fuel that contributes to these trucks meeting the NO_x and PM standards. Looking ahead, California diesel fuel continues to change. Roughly 20 percent of California's diesel fuel is now renewable, and industry announcements suggest that could grow considerably in coming years. Similarly, supply of renewable natural gas to trucks is increasing. Ultra-low NO_x engines, coupled with renewable fuels, will have a prominent place in the future California truck mix and must be appropriately recognized as part of the solution for reaching ozone and greenhouse gas emission goals in all California regulations that cover these activities.

We are concerned that the current rulemaking approach, which bifurcates consideration of Advanced Clean Trucks and Low NO_x rules, limits consideration of the role for all technologies and fuels. That is because the analysis of all technologies and fuels should have been conducted comprehensively to understand what the potential opportunities are from both an emissions and

cost perspective. **Not having this comprehensive analysis likely impedes opportunities for quicker emission reductions in non-attainment areas and throughout the state.**

Furthermore, the accelerated rulemaking processes for both the ACT and Omnibus rules preclude meaningful comment. In particular, the significant last-minute changes in the ACT sales targets and minimal time for review/commenting on the Omnibus ISOR (a little over 2 months) is a substantial change in prior CARB procedures and significantly shorter than required by many air districts. The ISORs for both the ACT and Omnibus rules are insufficient for meaningful comment (for example, the emissions analysis document is only 20 pages long), with many of the important technical assumptions and details of the underlying technology feasibility, emission reductions, and cost analyses left out or only minimally described. It should be noted that CARB did NOT hold any public rule workshops on the ISOR feasibility, emissions and cost analyses.

It is striking that CARB only released the beta version of the "Mobile Emissions Toolkit for Analysis" (or META) tool, which includes many of the technical details and CARB assumptions, on August 5, 2020 and asked for comments by September 4, 2020. This is after the ACT adoption and the Omnibus Low NO_x rule adoption hearing, and it comes too late to allow for meaningful use in understanding the untransparent assumptions of the proposed Omnibus rule ISOR. This is exactly the reverse of how a rulemaking should progress: technical analyses, to public workshops, to proposed rule, to Board hearing. Initial review of the beta version of the META tool and other CARB emission tools indicate that key assumptions appear poorly cited, not reflective of all available information, and at times inconsistent among the tools. The degree to which this has affected the ISOR analyses is not completely known because of the minimal nature of the technical documentation in the ISOR, and absence of public workshops and/or technical working group meetings.

WSPA companies are considering major investments to make lower-carbon renewable diesel fuel. CARB should ensure a place for low-NO_x engines in all of the appropriate regulations on this topic, to enable investments – and emission reductions – to happen as quickly and cost-effectively as possible. From a policy perspective, we would encourage CARB to develop a regulatorially-consistent set of rules that is technology/fuel neutral and does not artificially limit their ability to deliver a superior result.

Recommendation: We highly recommend that CARB step back and take more of a comprehensive, technology/fuel neutral approach with greater stakeholder engagement on key technical issues before rule proposals are formulated. These steps should be the foundation of rulemaking, not done after rule adoption as has happened with the ACT rule and appears to be happening now. As we noted in our May 28, 2020 letter to CARB on the ACT rule, "it is unclear from CARB's analysis whether the shorter-term air quality goals could be met utilizing currently existing low and ultra-low NO_x technologies in a much more cost-effective manner than the approach currently proposed by CARB." These important technical outreach and regulatory process steps are necessary to ensure that an expeditious and cost-effective emission reduction strategy is clear to all stakeholders and the Board. They should come before Board decisions on the Omnibus Low NO_x and future Zero Emisson Truck rules.

We also recommend that as CARB continues to develop its Mobile Source Strategy, that it allow for this type of comprehensive analysis to more holistically inform that effort.

Technical Issues Should Be Addressed in a More Thorough Process

As noted above, there has been insufficient time to do a complete review of the ISOR analyses, and there have been no public worshops to discuss them with CARB staff and stakeholders. The

initial analysis of the META tool - issued only 3 weeks before the rule adoption hearing - has raised as many questions as it answers. There are a number of significant technical issues that this proposed rule raises, which include, but are not limited to, those listed below. For these initial issues, we provide these recommended remedies. However, we note that the appropriate place to raise these issues and discuss remedies with the staff would have been at public rule workshops or, as needed, specialized technical working groups after the ISOR was released.

1. An inconsistent basis was applied to determine the full useful life (FUL) period amendments of different classes of heavy duty vehicles (Refer to section III.A.5.1.1.).

   When determining FUL for Medium Heavy Duty Diesel (MHDD) and Light Heavy Duty Diesel (LHDD), CARB used approximately 80% of the average mileage for an engine rebuild or replacement surveyed by MacKay & Co. (Table I-8). CARB, however, proposed Heavy Duty Diesel (HHDD) engine FUL of 800,000 miles, which is currently used in EMFAC and also recommended by MECA and MEMA; this mileage represents 94% of HHDD engine's service life, much higher than 80% used in MHDD and LHDD. As mentioned by CARB, the EMFAC values "do not reflect engine rebuilds or replacements" and have a different meaning from the average mileage from MacKay & Co. Likewise, for Heavy Duty Otto (HDO) engines, CARB proposed a useful life value for 2031 MY corresponding to 92% of the rebuild/replacement miles, based on a single manufacturer product literature recommendation (Isuzu, 2019). This inconsistent approach to determine full useful life values raises questions and requires clear justification.

   Consequentially, the over-estimated FUL for HHDD vehicles would require more complex, expensive and durable technologies, significantly increasing vehicle costs, resulting in curtailing customer' vehicle choice. Furthermore, to ensure the durability in after-treatment system for the longer FUL, diesel's fuel quality might need to be revised/changed, which, in turn, could incur additional costs to customers.

   Recommendation: CARB should set the FUL of HHDD engine and HDO using the same basis as for MHDD and LHDD.

2. CARB's projected cost for lengthened warranty and EWIR amendments are estimated at $933 million (Table IX-18) and $276 million (Table IX-29), respectively. However, the cost savings from them are only $581 million and $69 million, as shown in Table V-7. Based on these figures customers are not able to fully recover the warranty and EWIR cost. In addition, it is not clear whether CARB considers any discount for the future costs and savings associated with the lengthened warranty.

   Recommendation: CARB should provide a clear justification of customer benefit from extending the warranty.

3. Technology costs provided in the ISOR document are projected based on the NREL' cost survey and analysis published in March 2020. (Refer to section IX.1.1.) It is important to note that NREL received a total of only five survey responses from a mix of advanced engine technology and emission control technology trade organizations, Tier 1 suppliers, and engine OEMs. In fact, due to their nature, trade organizations may not have first-hand data on technology costs. A survey with such small sample size results

in a significant uncertainty in the cost analysis, raising concerns about the validity of the survey and the reliability of the data provided to justify technology package cost.

Recommendation: CARB should reconsider the cost implication of the Proposed Amendment taking into account the significant uncertainty in the National Renewable Energy Lab.'s (NREL) technology cost analysis.

4. Continuous, accurate and reliable measurements of NO_x emission at very low concentrations is a very difficult undertaking. Cao et al. (2016) showed that the measurement error of PEMS equipment increases sharply below 0.1 g/kWh (or 0.074 g/hp hr) from 15% to about 50% at 0.03 g/kWh (or 0.022 g/hp hr). It is acknowledged that a conformity factor is introduced to account for the measurement uncertainties. However, variability in measured results related to real driving emissions route, operating conditions of the vehicle, and evaluation of the data still exists with the current equipment. Without additional supporting data on the accuracy of equipment, the conformity factor of 1.5 suggested in the Proposed Amendment cannot be justified.

   Recommendation: Given the significant uncertainty in the measurement accuracy with the current PEMS equipment at very low NO_x emissions, CARB should set a conformity factor higher than 1.5, until the PEMS accuracy is improved and confirmed.

5. Additionally, ambiguity exists - particularly in the ACT rulemaking process - concerning the status of California's waiver emissions program. Given that the status of California's waiver program is being litigated and is not settled, there is concern as to whether CARB's rulemaking authority regarding these rules is preempted in light of the federal administration's action to roll back the state's ability to enforce more stringent limits on vehicle emissions than prescribed by the federal government. We recommend that careful consideration is taken by CARB to avoid subjecting the rulemaking process to potential legal challenge.

Conclusion

Thank you for consideration of our comments. We would welcome the opportunity to discuss these ideas in more detail with you. 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 issue areas.

Sincerely,

Tiffany Krista Roberts

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