July 9, 2021

Rajinder Sahota
Deputy Executive Officer - Climate Change & Research
California Air Resources Board
1001 I Street
Sacramento, California 95814

Re: WSPA Comments on CARB Scoping Plan Workshop Series

Dear Ms. Sahota:

Western States Petroleum Association (WSPA) 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 another 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 in local, state and federal tax revenue to support schools, roads, public safety and other vital services.

WSPA appreciates the opportunity to comment on the kickoff workshops for the development of the 2022 Scoping Plan that were held June 8-10. This letter summarizes important early thoughts from WSPA and its members regarding critical concepts to consider as this plan is developed.

***CARB's 2022 Scoping Plan Should Include All Available Options to Achieve Goal***

The 2022 Scoping Plan process is attempting to look further into the future than any previous Scoping Plan exercise that CARB has undertaken to date – all the way out to 2045. The likelihood that we have a clear and realistic view of the technical solutions that could allow California to achieve carbon neutrality by 2045 is very low.

At a CARB workshop on August 15, 2019, there were notable inputs regarding this point. Melanie Kenderdine at Energy Futures Initiative ("EFI") presented an overview of their technology analysis "*Pathways for Deep Decarbonization in California."* She noted during her overview of this presentation that we "don't know the technologies you will have or need in order to meet 2050 targets."[1] Also during this workshop, Dr. Nathan Lewis, Division of Chemistry and Chemical Engineering at the California Institute of Technology noted that California "need(s) to have optionality so that we can invent the future that lets us do (carbon neutrality) cost effectively."[2] He noted that "we don't have all the technology that we need" and that in addition to known "reach technologies," that "there are things to be invented."[3] To assume we have all the answers and shut down avenues of scientific exploration that could yield breakthrough approaches limits our ability to meet the goal. CARB should approach the Scoping Plan with an open mind by looking at and leaving on the table all

[1] Testimony at CARB Public Workshop to Discuss Carbon Neutrality: Scenarios for Deep Decarbonization, accessed at https://www.youtube.com/watch?v=blTTNvUrLTk, time stamp at 33:20.

[2] Ibid, time stamp at 54:00.

[3] Ibid, time stamp at 54:10.

available options to achieve carbon neutrality. Doing so will increase the likelihood of meeting the state's goal.

Pursuit of an electrification strategy will bring new opportunities and risks. We were encouraged to hear many of these risks explored in the recent Scoping Plan workshop sessions. We encourage CARB to clearly communicate the potential pros and cons (or risks) of electrification in the Scoping Plan. Energy reliability and resilience through energy diversity is a critical goal. State and national experience in recent years have shown the value of energy supply diversity. As part of the evaluation of various scenarios, we trust that CARB will consider the important role that the state plays in the security of the country and how access to multiple forms of energy can enhance energy security.

Lastly, as it develops the Scoping Plan, CARB should remain cognizant of its obligations and boundaries under the relevant authorizing statutes. (Please see Appendix A to this letter for WSPA's legal analysis.)

During the workshop series, CARB stated that even full electrification will not be enough to meet the state's goal of carbon neutrality. During the workshops, representatives from the state discussed that the state must go further to change behavior[4] by imposing additional pricing measures intended to further influence decision making regarding individual travel choices. Discussion during the June 10th Transportation Sector workshop reiterated the idea of "managing demand for single occupancy vehicles."[5]

If the state knows it cannot achieve its carbon neutrality goals through its current bans and mandates and needs to go further - resorting to even more draconian measures to limit travel, should we not be more resolute in considering pragmatic options such as liquid fuels and negative emissions opportunities? Given the above, we should all be asking ourselves "Why is the state disallowing more pragmatic options that could help California avoid such an extreme path?"

Approaches that recognize the important impact of low carbon liquid fuels available today could allow the state to help meet its goals, particularly in the short-term, and foster technologies that could become a linchpin of California's low carbon future. An important example of the value of keeping such choices in play can be seen in a recent study by Ramboll. The study evaluates outcomes from various approaches to decarbonize the freight sector and demonstrates how considering a broader suite of policy choices could provide a superior earlier outcome for reducing NOx emissions while simultaneously reducing GHG emissions. A copy of this report is provided with this comment letter.

Ultimately the California energy system must work to foster an optimum outcome for the state. CARB, can help facilitate this via thoughtful approaches in the 2022 Scoping Plan. An approach that relies too heavily on a single approach, such as electrification, will lead to unreliability and unintended consequences. A hint of this has already been seen in necessary responses to the CAISO grid instability during which rolling blackouts were imposed. Even more recently on June 17, 2021, an emergency proclamation[6] was issued by the Governor noting grid instability. As a result, authorities warned port authorities that it may be necessary to disconnect oceangoing vessels at-berth from plug-in shore power. If the lessons from this are not learned, such problematic outcomes will be more frequent and more severe in the future.

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[4] 2020 Mobile Source Strategy – October Workshop Presentation, at page 28. Accessed at https://ww2.arb.ca.gov/sites/default/files/2020-10/2020_MSS_October_Webinar_Presentation.pdf, June, 2021.

[5] Scoping Plan Kickoff, Focus Area Discussion – Transportation. Accessed at https://www.youtube.com/watch?v=co6HkmVpcTg, time stamp 56:40.

[6] Proclamation at https://www.gov.ca.gov/wp-content/uploads/2021/06/6.17.21-Extreme-Heat-proclamation.pdf, accessed June, 2021.

This outcome can be avoided if the state recognizes the benefit of policies that incent outcomes that provide reliable and affordable energy choices as the state decarbonizes its economy – and letting this define the path forward versus trying to force a sub-optimal solution.

***Defining Carbon Neutrality as Net Zero Follows the Science***

Carbon neutrality should be defined as net zero, i.e., sources equal sinks. The IPCC has weighed in on the importance of carbon dioxide removal ("CDR") and has noted that all analyzed pathways limiting warming to 1.5°C use CDR to some extent to neutralize emissions.[7] Application of a net zero approach creates a more realistic pathway for the state to achieve its climate goals. Given that all the technical solutions that can deliver the desired results are not obvious today, it follows that the paths for the lowest costs approaches are even less certain. It is important that this reality is acknowledged early in the 2022 Scoping Plan development process to allow for a robust discussion and evaluation. In defining carbon neutrality, we also encourage CARB to clearly define early in the Scoping Plan process the broadest range of sources and sinks and geographic boundaries possible.

***Emission Reductions Should Be Made Globally and Economy-Wide to Achieve the Goal***

Given that GHGs are measured on a global basis, California should embrace the most cost-effective emission reductions or removals wherever they can be achieved. CARB indicated the need to consider this in its early thinking on reaching carbon neutrality when it noted in its January 23, 2019, presentation that progressive jurisdictions such as Sweden were planning to achieve reductions both in-jurisdiction as well as with a portion being achieved by investments abroad.[8] Such an approach provides the opportunity to reach neutrality at lower cost and with greater global participation. This should be seen as a win-win.

Additionally, it is critical to remember that California's globally recognized cap-and-trade program is a tool to help the state achieve its climate goals. Market-based approaches remain the most cost-effective and efficient approaches to addressing climate change and allowing for discovery of any technology that can help California towards this aim. CARB should continue to lean into the cap-and-trade program and allow it to play a bigger role in the 2022 Scoping Plan.

***CARB Is Pivoting Away from Recognition that Early Emission Reductions Are Important***

In the early years of climate policy development in California, past policy makers prioritized early actions to mitigate GHG emissions[9]. This was for good reason, as early emission reductions provide greater environmental value for the global carbon budget. This was a commonly held tenet that shaped climate policy in the past. Unfortunately, based on the remarks made during the kick-off workshop, CARB is pivoting away from this principle, deprioritizing early emission reductions in favor of potential reductions in the out years via an all-electrification approach. In a corollary to

[7] IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press, at page 96.

[8] From presentation on January 23, 2019 CARB workshop on carbon neutrality, at slide 11. Accessed June, 2021 at: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/meetings/012319/cneutrality_ca.pdf

[9] Per AB32 (2006) at 38562(b)(1) the state shall "Design the regulations, including distribution of emissions allowances where appropriate, in a manner that is equitable, seeks to minimize costs and maximize the total benefits to California, ***and encourages early action to reduce greenhouse gas emissions***." (emphasis added)

abandoning the principle to prioritize early actions, CARB staff has also stated that it will not be relying on "bridging strategies."[10]

These statements were made before CARB staff has completed or taken public comment on any of their Scoping Plan modeling. We note that the E3 report (which CARB noted they will be relying on to inform the Scoping Plan) states that its three scenarios were "not optimized"[11] (E3's own words) – meaning that they did not attempt to assess for the most cost-effective and least risky pathways. CARB staff should not eliminate technologies prior to completing appropriate analysis for the Scoping Plan. Instead, CARB staff should evaluate and publicly vet multiple scenario analyses; then they should present a range of low-risk, cost-effective approaches for public comment before presenting to the CARB Board. All this should be done without prejudgment.

The stated direction to "no longer look for bridging options" also suggests that NOx and PM emissions that could be significantly reduced by embracing ultra-low NOx ICE technology, are not a priority for CARB and therefore the SCAQMD and SJVAPCD's short-term NAAQS goals are not a priority. It further suggests that early GHG emission reductions, when this technology is coupled with low carbon liquid and gaseous fuels, is also not a priority for CARB. Such a message from CARB is extremely worrying. The reality is that low carbon liquid and gaseous fuels are critical for early emission reductions, as even under the most aggressive scenarios, liquid fuels will still make up a significant portion of the transportation market.

***Liquid Fuels Will Still Be Needed Beyond 2045 and Can Provide Early Benefits***

During the kickoff workshop on June 8, Dr. Lew Fulton of UC Davis noted that an important part of the work that is not getting much attention, is the fact we will still need a lot of liquid fuels in 2045 before we fully transition.[12] The reality that liquid fuels will still be needed in 2045 calls into serious doubt any plan that does not leverage early benefits that lower-carbon liquid fuels can bring to California today, not only making early progress with the state's climate goals but also reducing criteria air pollutants in parts of the state where air quality issues persist. Some of our WSPA member companies are pursuing major projects in California to produce non-traditional lower-carbon liquid fuels such as renewable diesel and gasoline, renewable natural gas, lower carbon gasoline, and sustainable jet fuel. These must be a part of any Scoping Plan and should be included in the modeling of potential pathways.

Further, the support of the technologies that would occur by valuing lower-carbon fuels could help ensure that there are fuel options ready for longer-distance modes of transportation that are even more difficult to decarbonize. These include fuels for the aviation industry as well as global shipping.

***Government Manipulation of Markets Harms Californians and the Environment***

During the kickoff, a troubling proposal from the UC Santa Barbara supply study was presented. It suggested a restriction or elimination of exports of refined products[13]. Denying the opportunity for California refiners to produce and export cleaner fuels is institutionalizing significant environmental and economic leakage – accomplishing nothing to reduce the global GHG budget while simultaneously and unnecessarily eliminating jobs for California workers. The 2022 Scoping Plan process should dismiss such misguided policy concepts early to ensure there is focus on better

[10] From June 8, 2021 CARB Scoping Plan workshop, accessed June 2021, at https://www.youtube.com/watch?v=4-j8YXndITc, time stamp at 25:30.

[11] From August 9, 20210 CARB carbon neutrality workshop, accessed June 2021, at https://www.youtube.com/watch?v=U-4yHdC5agw, time stamp at 14:30.

[12] Ibid, time stamp at 1:06:30.

[13] From "Enhancing equity while eliminating emissions in California's supply of transportation fuels", accessed June 2021 at https://ww2.arb.ca.gov/sites/default/files/2021-06/ucsb_sp_kickoff_june2021_0.pdf

approaches. As liquid fuels will still be needed in 2045, policies that incent their production elsewhere makes no sense from a GHG perspective.

In parallel to approaches that would hinder downstream refining, the UC Santa Barbara study also posited tactics to reduce production of crude oil from California[14]. Forcing in-state crude oil production decline through policy and tax approaches only serves to prop up jurisdictions who do not share California's values. Preserving the capabilities of this industry allows for production of lower carbon crudes that will be needed for California to meet its climate goals.

***Natural and Working Lands Should Be Featured in Scoping Plan***

Natural GHG sequestration opportunities should also not be overlooked. The CDFA presentation[15] highlighted farmer- and rancher-led solutions. WSPA encourages CARB to consider the synergy between farming practices and biofuels. Recognition of sustainable farming practices in a biofuel lifecycle will connect the farmer to a market-based incentive program and drive this behavior while at the same time providing substantial near-term emission reductions.

***Modeling Must Be Transparent and Inform Policy***

The Scoping Plan process will fall short if it does not utilize a fully transparent approach that provides multiple opportunities for public meetings to discuss data and assumptions for CARB's modeling work. The modeling work should exhaustively consider a range of scenarios by which the state can reach carbon neutrality. While CARB has already indicated that it will include a scenario that incorporates EO79-20, even within the language of this Executive Order, there is a prompt that directs CARB to consider alternative approaches to ensure it can "act consistently with technological feasibility and cost-effectiveness."

Proper scientific modeling is not a political exercise to buttress a desired conclusion. Rather, it is a data-driven process during which a broad range of scenarios are tested to extract learning and discovery. Proper modeling seeks to find an optimization, with respect to GHG reduction outcomes, the costs to achieve them, the technical risks of the modeled approaches as well as other critical factors.

Unfortunately, CARB's recent work on the Mobile Source Strategy abandoned these fundamentals. For the 2020 Mobile Source Strategy (MSS), the staff made presentations based on the outcome of their META model tool on March 23, 2020. The original indication from CARB was that this model was not even going to be provided for peer review. Finally, CARB did release the tool in October 2020 – over half a year after the single presentation for this topic – at which time they offered the output as a *fait accompli*. A politically driven approach to modeling as utilized during development of the 2020 MSS simply should not be allowed to happen again.

***Multiple Workshops to Review Model Inputs and Outcomes is Essential***

WSPA implores CARB to hold multiple workshops regarding the model work performed to support the 2022 Scoping Plan. These workshops should provide stakeholders a clear understanding of model inputs, assumptions, and all forced constraints. It is only with such a robust public process that the optimum approach and outcome for California can begin to be truly illuminated. Additionally, CARB should release any model used to the public so that stakeholders can assess the veracity of the model, test various assumptions and develop alternate scenarios for discussion.

[14] Ibid

[15] https://ww2.arb.ca.gov/sites/default/files/2021-06/cdfa_sp_kickoff-nwl_june2021.pdf

As modeling is developed and risks to approaches are assessed, careful consideration needs to be given to evaluation check points and offramps. CARB and its sister agencies will need to be ready to respond to unexpected outcomes to ensure that new technologies that surface can be leveraged, while unintended adverse consequences are managed in a way to minimize harm. The pace at which technology develops is inherently hard to predict, so metrics with signposts need to be in place, along with offramps to manage when the outcome is not what was anticipated. We also suggest that California consider modeling scenarios where critical technologies do not advance at the pace predicted by CARB as well as where critical technologies advance much faster than CARB predicts. Such an evaluation will be helpful to consider as many of the dynamics that will influence actual outcomes are outside of the state's control.

***Modeling Should Consider Full Supply Chain Costs and Risks***

Modeling work should consider the costs and risks of the full supply chain. The state makes a genuine effort to do this with the characterization of crude utilized in California to produce liquid fuels. In contrast, it seems that the state is currently dismissing the environmental footprint of mining and refining precious metals, production of batteries and the associated hazardous wastes needed to manufacture and recycle ZEVs. We encourage CARB to not ignore these environmental costs, outsourcing the environmental impacts that result. CARB should seek to understand these impacts and model those emissions. A Cal-EPA multi-media environmental assessment of a high-ZEV pathway should be strongly considered. This should consider the lifecycle GHG impact of ZEVs including vehicle and battery manufacturing as well as other potentially adverse impacts that this approach creates.

Another concern that must be modeled is supply risk**,** particularly for precious metals. The Biden Administration recently published its 100-Day Reviews under Executive Order 14017[16] which highlights the supply chain risks within this system. How do model outcomes change if availability of key metals (lithium, cobalt) that many analyses conclude will be in short supply (such as a recent comprehensive analysis by IEA[17]) is limited? Scenarios that investigate this possibility need to be developed versus just assuming it is a problem that will not manifest.

***Negative Emissions Opportunities Should Be supported for Optimal Outcomes***

As GHGs are a global challenge, progressing technology that supports negative emissions should be appropriately valued. Among the options to avoid CO2 emissions, California is extremely well-placed to enable development of a CCUS industry. Experts agree, including the latest IPCC evaluation that model utilization of CCUS in all but one scenario, at cumulative levels of 500 – 2,400 GtCO2.[18] These figures remain comparable to earlier work of the IPCC that concluded that CCUS would likely contribute 15–55% to the cumulative mitigation effort worldwide until 2100, averaged over a range of baseline scenarios."[19]

There is also notable work on this topic that has been developed for the California context. Lawrence Livermore National Lab's "Getting to Neutral"[20] report notes how California is enviably placed to lead

[16] Accessed June 2021 at https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf

[17] Reliable supply of minerals – The Role of Critical Minerals in Clean Energy Transitions – Analysis - IEA, accessed at https://iea.blob.core.windows.net/assets/24d5dfbb-a77a-4647-abcc-667867207f74/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf

[18] IPCC 2018, at page 14.

[19] IPCC, 2005: IPCC Special Report on Carbon Dioxide Capture and Storage. Prepared by Working Group III of the Intergovernmental Panel on Climate Change [Metz, B., O. Davidson, H. C. de Coninck, M. Loos, and L. A. Meyer (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 442 pp, at page 12.

[20] Accessible as of June 2021 at https://www-gs.llnl.gov/content/assets/docs/energy/Getting_to_Neutral.pdf

the demonstration of CCUS globally, given our subsurface structure (both depleted wells and saline formations) and technical capabilities. It identifies the potential for up to 100 mln t CO2/yr of removal capacity from biomass-based production of fuels of all types, as well as uptake of direct air capture (DAC).[21] A Stanford/EFI study also described 60 mln/yr of capture potential from current large stationary sources.[22] CCUS and DAC are both key negative emission pathways that will be needed for the state and world to reach neutrality. In addition, the expansion into blue hydrogen can help foster further advancement that can enable developments in green hydrogen. These developments in hydrogen technology are a step in the right direction towards creating negative emission opportunities in the future.

What is needed in California is the political will to embrace these opportunities and remove the barriers that exist within the state. While many of these barriers exist outside of CARB, a robust consideration of this approach in the 2022 Scoping Plan could provide an important reinforcement of the imperative role of negative emissions opportunities. This will also reinforce the need to contemplate the holistic energy system versus pitting sectors against each other.

Similarly, CCUS needs to be properly accounted for and valued. An emission that is sequestered is never emitted, so protocols to simply exclude it from the inventory should be sufficient. Additionally, it will be vital for CARB to work within the current accounting framework to adequately capture and reflect negative emissions appropriately. Accounting for providing incentives for negative emissions will be critical on the path to carbon neutrality.

The 2022 Scoping Plan is looking out much further than ever before. The risks that must be managed with respect to technology development and economic impact are more significant than in any previous Scoping Plan. CARB's early recognition of this – including the need for transparent modeling of multiple approaches that inform optionality – will be important and should feature in the development of this plan from start to finish. Existing successful programs that are globally recognized should be foundational for this plan. All early emission reductions, given their outsized benefit, should continue to be valued in the 2022 Scoping Plan. Fortunately, we are early enough in the process to address these gaps and ensure the process is launched optimally and in a way that all stakeholders can contribute to a successful outcome. We look forward to working with you toward that end.

Sincerely,

Tiffany Roberts
Vice President, Regulatory Affairs
Western States Petroleum Association

[21] Ibid, at page 2

[22] "An Action Plan for Carbon Capture and Storage in California: Opportunities, Challenges, and Solutions", accessed at https://sccs.stanford.edu/ccs-ca-fullreport-form, June, 2021.

APPENDIX A

***CARB Should Remain Cognizant of its Obligations and Boundaries under Relevant Authorizing Statutes***

The California Legislature, in directing CARB to adopt the Scoping Plan, set forth express requirements and limitations on CARB's authority in adopting and implementing the Scoping Plan. In particular, WSPA emphasizes that CARB must consider technological feasibility, cost-effectiveness, total potential costs, and environmental impacts of proposals and cautions CARB against relying on policies it lacks the current statutory authority to implement.

**A. CARB must consider technological feasibility, cost-effectiveness, total potential costs, and environmental impacts of proposals.**

In accordance with statutory and regulatory mandates, CARB should ensure that it fully considers the technological feasibility, cost-effectiveness, total potential costs, and environmental impacts of different proposals as it updates its Scoping Plan and proceeds with its draft CEQA analysis. Specifically, CARB should consider these different factors with respect to the potential negative environmental and economic externalities associated with increased ZEV adoption.

As CARB is aware, AB 32 requires CARB to prepare a scoping plan "for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions." Cal. Health & Safety Code § 38561(a) . The statute also requires CARB to account for the plan's total potential costs and benefits "using the best available economic models, emission estimation techniques, and other scientific methods." Id. § 38561(d). Likewise, Executive Order N-79-20 requires that CARB, in developing zero-emission vehicle strategies, to "act consistently with technological feasibility and cost-effectiveness." Executive Order N-79-20(2).

The California Environmental Quality Act ("CEQA") Guidelines similarly require consideration of environmental impacts, as well as the mitigation of such impacts where feasible. See 14 C.C.R. § 15021(a). CARB must also evaluate a "range of reasonable alternatives" which would "feasibly attain" most of the Scoping Plan proposals' basic objectives "but would avoid or substantially lessen any of the significant effects" of the proposals. See id. § 15126.6(a). Specifically, when considering the feasibility of alternatives, the CEQA Guidelines provide the following factors to consider: "site suitability, economic viability, availability of infrastructure, general plan consistency, other plans, or regulatory limitations, [and] jurisdictional boundaries." Id. § 15126.6(f)(1).

Consistent with its obligations under AB 32 and CEQA, as CARB evaluates proposals, it should consider the following:

- **The environmental impacts of ZEV manufacturing.** Executive Order N-79-20 and CARB's Mobile Source Strategy sets nonbinding goals to transition from internal combustion engines to ZEVs. This will, along with new ZEV regulations adopted pursuant to the foregoing, result in the development of several battery electric and hydrogen fuel cell vehicle manufacturing facilities. CARB should assess the feasibility for manufacturers to supply an increasing demand for ZEVs as well as the environmental impacts associated with the development of these new vehicle manufacturing facilities.

- **A full life cycle analysis of mass scale battery electric vehicle (BEV) battery production, including end-of-life battery recycling and disposal.** Increasing BEV battery production to meet increasing EV demand will require the mining, production and use of rare earth metals, among other resources, that are likely sourced and processed outside the state of California. Thus, CARB should assess the availability of these resources needed to manufacture BEV batteries, as well as the environmental impacts associated with the manufacture, recycling, and disposal of batteries. CARB's draft CEQA analysis must set minimum requirements and thresholds for availability of resources for manufacturing, recycling, and disposal of batteries related to the increased production and use of BEVs. Further, the Scoping Plan must undergo reevaluation if it is determined that these resources are not available to meet the projected demand of the current or future vehicle sector regulations. Criteria and thresholds can include, but are not limited to, impacts from the increased demand for rare earth metals and other materials needed to produce batteries and grid upgrades, transparent and acceptable labor practices, impacts to water quality, and the availability of battery recycling facilities.

- **The environmental impacts of an increased statewide fleet inventory.** Because fleet owners and operators may need to purchase additional ZEVs to replace a single internal combustion engine vehicle to meet fleet operational need, CARB should assess any environmental impacts that would result from an increase in overall fleet inventories. Due to charging times, availability of charging infrastructure, and operational needs, the introduction of ZEVs can greatly impact fleet efficiency, resulting in the need for multiple ZEVs to meet the operational requirements of a single internal combustion engine vehicle. Similarly, batteries are heavy and reduce the amount of freight that may be legally transported, further increasing the number of ZEV trucks needed to transport the same amount of freight. Additionally, due to the degradation of battery capacity over time, older ZEVs may require more frequent recharging, thereby impacting fleet operations and increasing the need for additional ZEVs to replace a single internal combustion engine vehicle.

- **The environmental impacts and health and safety issues associated with the transport of hazardous materials in ZEVs.** Medium- and heavy-duty trucks are routinely used to transport hazardous materials such as gases, flammable and combustible liquids, flammable solids, oxidizers, and explosives. CARB should assess the environmental impacts and health and safety issues associated with loading, unloading, and transporting such materials in ZEVs.

- **The changes in non-exhaust particulate matter (PM) emissions from increased ZEV operation.** As CARB considers updates to its Scoping Plan, the Agency should include an assessment of the changes in the following non-exhaust PM emissions associated with ZEVs as compared to the internal combustion engine vehicles that they would replace, including PM from entrained road dust, tire wear, and brake wear. Recent studies on light-duty BEVs indicate that light-duty BEVs could generate 18-28% higher tire wear and 24% higher entrained road dust than their diesel/gasoline counterparts due to increased vehicle weight.[23] Medium- and heavy-duty ZEVs are also heavier than their diesel/gasoline counterparts and include regenerative braking technology.

[23] Victor R.J.H. Timmers and Peter A.J. Achten, *Non-exhaust PM emissions from electric vehicles*, 134 Atmospheric Environment, 10–17 (June 2016), https://www.sciencedirect.com/science/article/abs/pii/S135223101630187X?via%3Dihub; OECD Working Party on Integrating Environmental and Economic Policies, *Non-exhaust emissions from road transport: Causes, consequences and policy responses*, (June 25, 2020), https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/EPOC/WPIEEP(2020)4/FINAL&docLanguage=En.

It will be especially important for CARB to analyze these effects, given the limitations on NOx and PM emissions reductions in California's State Implementation Plans.[24]

- **The near-term air quality benefits of low- and ultra-low NOx technologies.** WSPA supports regulations that are technology neutral and believes that manufacturers should be incentivized to meet the needs of the state with any viable technology. Lower emission diesel, renewable diesel, natural gas, hybrid powertrains, and especially renewable natural gas vehicles (as this option can achieve significant reductions in both oxides of nitrogen (NOx) and greenhouse gas emissions now, often at lower costs) should be able to compete on an equal footing with other technologies to meet the goal of achieving greenhouse gas emissions reductions. CARB should consider the near-term air quality goals benefits that could be achieved by utilizing currently existing low and ultra-low NOx technologies in a much more cost-effective manner than mandating electric or hydrogen vehicles in the near-term.

- **An assessment of the impacts resulting from updates and improvements to existing infrastructure.** CARB should take a more holistic view including an assessment of the impacts resulting from changes to existing infrastructure. These include, but are not limited to, the following: (1) Air quality and other environmental impacts related to electrical grid upgrades (generation, transmission, storage, and distribution) to support vehicle charging infrastructure while maintaining reliability and resiliency; (2) Electric vehicle fueling infrastructure development, which would include a state-wide network of electric vehicle charging stations; and (3) Feasibility of electric vehicle adoption and related infrastructure upgrades in low-income, multi-family dwellings, and rural communities.

- **The effects of increased ZEV use on the reliability of the electricity grid.** CARB's CEQA analysis should evaluate how increased reliance on ZEVs will increase electricity demand and potentially threaten grid reliability, especially at peak charging times. As CARB is aware, grid reliability has become a significant issue in both California and across the United States in recent years. It cannot be assumed that adequate resources are available to support ZEV mandates.

- **The impact of energy price increases as a result of fuel production restrictions.** Notably, one of the transportation studies that informs this Scoping Plan Update, *Enhancing equity while eliminating emissions in California's supply of transportation fuels* ("Study 2"), did not consider energy price effects of policies limiting fossil fuel production, or the costs borne by other sectors due to such policies.[25] Indeed, Study 2 noted the following: "There may also be important distributional consequences as the energy share of household expenditures generally tend to be larger for poorer households."[26] In order to account for equity concerns, CARB must provide some estimate of the costs the proposed policies will have on energy prices and how that will affect families and other sectors of the economy.

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[24] CARB, *Revised Draft: 2020 Mobile Source Strategy*, 45 (Apr. 23, 2021), https://ww2.arb.ca.gov/sites/default/files/2021-04/Revised_Draft_2020_Mobile_Source_Strategy.pdf ("For example, to meet the 8-hour ozone standards in South Coast Air Basin, an additional 108 tpd and 88 tpd of NOx emission reduction is needed in 2023 and 2031 respectively, relative to the baseline emissions included in the most recent attainment plans. In San Joaquin Valley, an additional 13 tpd of NOx and 0.1 tpd of PM2.5 emissions reduction are needed to meet the 2024 and 2025 targets,58 respectively.").

[25] Olivier Deschenes et al., *Enhancing equity while eliminating emissions in California's supply of transportation fuels*, ("Study 2") 23 (Apr. 21, 2021), https://zenodo.org/record/4707966#.YN395RGSmUn.

[26] *Id.*

**B. CARB must fully evaluate the detrimental social and environmental impacts of proposals to shut down domestic oil production.**

Concerningly, one of the studies CARB plans to use to inform its Scoping Plan update proposes policies aimed at artificially limiting, and potentially even shutting down, California oil production facilities.

California's Budget Act of 2019 (AB 74) directed the Secretary for Environmental Protection to engage researchers at the University of California to conduct two studies in support of the state's 2045 carbon neutrality goal: Study 1 focuses on identifying strategies to significantly reduce in-state transportation-related fossil fuel demand and emissions,[27] whereas Study 2 focuses on identifying strategic approaches to inform a just and equitable managed decline of in-state production of transportation-related fossil fuels.[28] CARB identifies these studies as informing the 2022 Scoping Plan.[29]

Study 2 laid out three proposals aimed at shutting down in-state fossil fuel production: (1) imposing production quotas, (2) costly excise taxes aimed at inflicting similar production limits as actual quotas, and (3) oil production facility setbacks.[30]

Consistent with AB 32 and CEQA, CARB must carefully consider all of the social and environmental impacts, both positive and negative, associated with such proposals. *See* Cal. Health & Safety Code § 38561(a); 14 Cal. Code Regs., tit. 14 § 15021(a). The analysis should also ensure the proposals do not inadvertently cause an increase in global or U.S. emissions, as Study 2 failed to address this.[31]

**C. CARB must weigh the Constitutionality of proposals to shut down domestic oil production.**

When considering the total potential impacts of transportation sector policies for inclusion in the Scoping Plan, CARB should evaluate the constitutional implications of shutting down California oil production via production quotas, burdensome excise taxes, or restrictive setbacks. Depending on the contours and timing of such policies, they likely would constitute a regulatory taking and a violation of the Contract Clause under the California and U.S. Constitutions. As such, the companies affected by such policies would be entitled to just compensation from the state.

Both the federal Constitution and the California Constitution provide that property owners are entitled to "just compensation" when the government takes their land for public use. Cal. Const. art. I, § 19; U.S. Const. 5th Amend. Article 1, § 19(a) of the California Constitution states, "Private property may be taken or damaged for a public use and *only when just compensation*, ascertained by a jury unless waived, has first been paid to, or into court for, the owner" (emphasis added). These constitutional provisions are "designed to bar [g]overnment from forcing some people alone to bear public burdens which, in all

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[27] Austin L. Brown et al., *Driving California's Transportation Emissions to Zero*, ("Study 1") (Apr. 1, 2021), https://escholarship.org/uc/item/3np3p2t0.
[28] Study 2.
[29] CARB, *Workshops Schedule*, https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/scoping-plan-meetings-workshops (last visited July 1, 2021).
[30] Study 2, at IV
[31] *Id.* at 24 ("Limitation #5: Omission of global consequences . . . . Depending on California-specific and global oil supply and demand elasticities, different TFFSS decarbonization policies may in fact change the global oil price, which would then determine whether GHG reductions in California lead to GHG emission changes elsewhere.").

fairness and justice, should be borne by the public as a whole." *Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 123 (1978) (citation and quotation marks omitted).

A *per se* taking occurs where a government regulation completely deprives an owner of all economically beneficial or productive use of the property. *Jefferson St. Ventures, LLC v. City of Indio*, 236 Cal. App. 4th 1175, 1193 (2015). Shutting down domestic oil facilities would constitute a *per se* taking under this standard. Given the health and safety restrictions on oil production sites, such properties may have no other economical or productive use other than as oil sites. Additionally, even if some sites can be redeveloped for some other economically productive use, the oil in the ground owned by WSPA members constitutes real property that the state would permanently prevent them from accessing. Forcing this oil to remain in the ground would deprive WSPA members of "all economically beneficial or productive use" of the oil, thereby constituting a *per se* taking. *See Lucas v. South Carolina Coastal Council,* 505 U.S. 1003, 1015 (1992).

However, even if a court finds that Study 2's proposals do not qualify as a *per se* taking, they would nevertheless qualify as a regulatory taking because they "substantially interfere[ ] with the ability of a property owner to make economically viable use of, derive income from, or satisfy reasonable, investment-backed profit expectations with respect to the property." *Jefferson St. Ventures, LLC*, 236 Cal. App. 4th at 1193–94. WSPA members have invested substantial amounts of money in making their oil facilities productive, and therefore, have significant investment-backed expectations with respect to their properties. California landowners also would be harmed. Landowners across the state receive royalties from renting their land to companies. Policies that shut down oil facilities would prevent companies and California landowners from realizing these investment-back expectations. Thus, such policies would constitute a regulatory taking based on their substantial interference with these expectations, and the state would be obligated to provide just compensation for companies' and landowners' losses.

Finally, policies that would effectively shut down oil facilities would violate the Contract Clause under the California and Federal Constitution, to the extent that such policies impair the obligations of companies under existing contracts. *See* Cal. Const. art. I, § 9 ("A law . . . impairing the obligation of contracts may not be passed."); U.S. Const. art. I, § 10, cl. 1; *Birkhofer v. Krumm*, 81 P.2d 609, 621 (Cal App. 1938) ("[I]t follows that such provisions of state constitutions as merely parallel and iterate provisions of the Federal Constitution must be so construed as to harmonize with the construction placed by the federal courts upon the latter.") If the state imposes production quotas or policies equivalent to this, fuel producers may not be able to meet existing short-term contracts with fuel purchasers. Such regulations would undoubtedly impair long-term fuel contracts as well, in addition to any land rental contracts between California residents and oil companies. Notably, the "severity of the impairment" increases the level of scrutiny which regulations are subject to, and "[t]otal destruction of contractual expectations is not necessary for a finding of substantial impairment." *Energy Reserves Grp., Inc. v. Kansas Power & Light Co.*, 459 U.S. 400, 411 (1983).

While courts have upheld state regulations that impair contracts but have a "significant and legitimate public purpose," id. at 411, the contracting parties in such cases are still entitled to just compensation from the state for any resulting impairment. *See Lynch v. United States*, 292 U.S. 571, 579 (1934) ("The Fifth Amendment commands that property be not taken without making just compensation. Valid contracts are property, whether the obligor be a private individual, a municipality, a state, or the United States."). As such, even if the aforementioned policies do not violate the Contract Clause, the state would

still owe WSPA members and California families that rent their land to them just compensation for any existing policies that such policies impair.

Therefore, as CARB considers the potential costs of policies that would shut down oil facilities, it should—at a minimum—account for the estimated costs of just compensation for the loss of property use, investment-backed expectations, and broken contracts that would inevitably result.

**D. CARB lacks statutory authority to unilaterally impose policies that shut down oil facilities.**

At best, it is unclear whether CARB possesses the statutory authority to impose production quotas, excessive fuel excise taxes, or restrictive setbacks. The California legislature has attempted to pass bills imposing these or similar measures, and they have failed to pass each time.

Each of the following attempts to phase out oil production has failed. In relation to production quotas, Governor Gavin Newsom vetoed AB 1440 in October 2019, which would have prohibited the issuance of oil and gas permits when operations would create a risk of damage to life, health, property, and natural resources, damage to underground oil and gas deposits from infiltrating water and other causes, loss of oil, gas, or reservoir energy, or damage to underground and surface waters suitable for irrigation or domestic purposes by the infiltration of, or the addition of, detrimental substances. Likewise, SB 246 would have set a 10% excise tax on oil and gas production, but it did not pass. Further, AB 345 originally proposed a 2,500-foot buffer zone between future well development and sensitive receptors when it was first introduced in February 2019. The bill was later amended to instead require the California Geologic Energy Management Division to set an appropriate setback distance, but it still did not pass.

Until the legislature passes a bill that imposes production quotas, additional excise taxes, or setbacks on fuel companies, CARB cannot do so unilaterally. *See Terhune v. Superior Ct.*, 76 Cal. Rptr. 2d 841, 845 (Cal. Ct. App. 1998) ("Administrative agencies have only the powers conferred on them, either expressly or impliedly, by the Constitution or by statute, and administrative actions exceeding those powers are void."). Because the California legislature has already rejected such bills, WSPA cautions CARB about relying on policies that may never ultimately pass to meet Scoping Plan goals.

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