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October 17, 2022

Advanced Clean Fleets
California Air Resources Board
1001 I Street,
Sacramento, CA 95814

(Submitted via the Workshop Comment Submittal Form and by email to zevfleet@arb.ca.gov)

Re: Comments on Advanced Clean Fleets Regulation ISOR Draft EA

The Western States Petroleum Association (WSPA) appreciates the opportunity to comment on the Initial Statement of Reasons (ISOR) and included Draft Environmental Analysis (EA) for the proposed Advanced Clean Fleets (ACF) Regulation, posted by the California Air Resources Board (CARB) on August 30, 2022 ahead of the Public Hearing on October 27, 2022.[1] WSPA is a non-profit trade association that represents companies that import and export, 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.

WSPA members are both fuel providers and fleet operators under the proposed ACF regulations. As an organization, we are not in support of the current proposed regulation for the reasons summarized below and detailed in Attachment A. The current ACF proposal excludes and precludes criteria pollutant and greenhouse gas emission reductions that a multi-technology/multi-fuel strategy using commercially available, CARB-certified trucks fueled by low carbon-intensity fuels can provide. An affordable and reliable multi-fuel strategy does not rely upon an unprecedented expansion of electric generation, transmission and distribution infrastructure and can reduce emissions while electric infrastructure is developed. The current ACF proposal needs to be revised to capture the emission reduction benefits of a multi-technology/multi-fuel strategy. We encourage CARB to hold a workshop to address these and other key stakeholder suggestions and then revise the proposal, ISOR and Draft EA before presenting the ACF for adoption. As our members are fuel providers and fleet owners that would be regulated under the ACF, we also ask that CARB include Low Carbon Fuels Standard (LCFS) staff as part of the ACF rulemaking process to assess and harmonize the direct and indirect effects of the ACF rule on the LCFS program, and vice versa.

Fuel suppliers in California, across the United States (U.S.), and worldwide are investing billions of dollars to produce low-carbon renewable fuels such as renewable diesel (RD), biodiesel (BD)

[1] CARB. Notice of Public Hearing to Consider Proposed Advanced Clean Fleets Regulation on October 27, 2022. Available at: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/notice2.pdf. Accessed: October 2022.

and renewable natural gas (RNG) for medium-duty vehicles and heavy-duty vehicles (MDV/HDV). These investments are encouraged and often required by regulations such as LCFS and Cap-and-Trade regulations on the U.S. West Coast and Canada, and by the federal Renewable Fuels Standard (RFS). Industry continues to make progress in reducing the carbon intensity of these fuels by optimizing feedstock sources and feedstocks, manufacturing processes and transportation.

These trends are most evident in California, where WSPA-member companies and others have invested heavily to produce renewable fuels for MDV/HDV. Per CARB LCFS data, nearly 3.4 million gallons per day of BD and RD are currently supplied to California consumers,[2] which is 34% of current total California diesel demand.[3] CARB's LCFS regulation effectively requires these products and the investments necessary to deliver them. CARB has publicly supported many of the announced renewable fuels projects.[4]

CARB's proposed zero-emission vehicle (ZEV) mandate risks stranding billions of dollars of private investment that has already been made in direct response to CARB's own LCFS regulation. We encourage CARB to provide a compliance option for renewable fuels in the proposed ACF.

Additionally, there are numerous deficiencies and/or omissions in the ISOR and Draft EA analyses, including but not limited to those below that must be addressed before CARB takes action on the proposed ACF.

- Inadequate Environmental Assessment: CARB has failed to fully assess the impacts of the proposed ACF regulation on particulate matter (PM) and greenhouse gas (GHG) emissions, critical mineral resources, and California's water supply. Additionally, CARB has failed to evaluate an alternative that would allow for low-carbon intensity (low-CI), low-NO_X technologies to compete with ZEVs in their alternative analyses presented in the draft Environmental Assessment for the proposed ACF. Refer to Comments A.2 through A.7 in Attachment A for further details.
- Inadequate Electric Grid Assessment: CARB must perform a more in-depth assessment of the impacts to the electric grid as a result of the ACF proposal to fully assess the impact on California's infrastructure and economy. This assessment should account for the costs associated with upgrades to the California grid infrastructure (new and upgraded generation, transmission, and distribution) and the costs associated with the installation of public and private electric vehicle (EV) chargers. Additionally, CARB has not addressed the feasibility

[2] CARB. 2022. Low Carbon Fuel Standard Quarterly Data Spreadsheet. July 31. Available here: https://ww2.arb.ca.gov/sites/default/files/2022-08/quarterlysummary_073122_0.xlsx. Accessed: October 2022.
[3] CARB. 2022. EMFAC Emissions Inventory. Available here: https://arb.ca.gov/emfac/emissions-inventory/d1a08e88bd07b3f76564d6d3b1fa544ec97e6400. Accessed: October 2022.
[4] CARB. Cleaner fuels have now replaced more than 3 billion gallons of diesel fuel under the Low Carbon Fuel Standard. Available at: https://ww2.arb.ca.gov/news/cleaner-fuels-have-now-replaced-more-3-billion-gallons-diesel-fuel-under-low-carbon-fuel. Accessed: October 2022.

of the current grid to expand to meet the additional demand that the draft regulation would present. Refer to Comments A.8 through A.11 in Attachment A for further details.

- Inadequate Exemption Language: CARB has failed to adequately consider the lead time needed for permitting electric charging infrastructure, and the process for appealing a rejected exemption request. Refer to Comments A.12 through A.14 in Attachment A for further details.

Conclusion

WSPA strongly encourages CARB to address the above deficiencies to ensure that CARB complies with its legal obligations under the California Health and Safety Code (HSC), Administrative Procedure Act (APA), and California Environmental Quality Act (CEQA). Specifically, CARB has a legal duty to address the following:

- *Leakage:* HSC § 38562(b)(8) requires CARB to minimize the "leakage" potential of any regulatory activities. In its ACF Proposal, CARB fails to consider the leakage potential of its ZEV mandate, based on an accurate lifecycle analysis of the GHG emissions associated with electric vehicles and associated infrastructure, as well as residual demand for liquid fuels for internal combustion engine vehicles (ICEV) remaining in 2040 and beyond.
- *Feasible Regulatory Alternatives:* Under Government Code § 11346.2(b)(4)(A), when CARB proposes a regulation that would mandate the use of specific technologies or equipment, or prescribe specific actions or procedures, it must consider performance standards as an alternative. The ACF proposal includes a 100% ZEV sales mandate for new medium- and heavy-duty vehicles beginning in the 2040 model year and beyond. This is not a performance standard; it is a technology mandate.[5] Further, CEQA requires CARB to consider a reasonable range of alternatives that "shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects." Cal. Code Regs. title 14, § 15126.6(c). CARB has failed to evaluate and/or analyze a technology neutral performance-based standard that would allow low-carbon fuel and engine technologies to compete with ZEVs in their alternative analyses presented in the Draft EA and the Standardized Regulatory Impact Assessment (SRIA) for the proposed ACF, as discussed in Comment 9.
- *Additional Environmental Impacts*: CARB's Draft EA does not consider potentially significant environmental impacts, in contravention of CARB's CEQA obligations. CEQA requires that the Draft EA contain "[a] discussion and consideration of environmental impacts, adverse or beneficial, and feasible mitigation measures which could minimize significant adverse impacts identified," as well as "[a] discussion of cumulative and growth-inducing impacts." Cal. Code Regs. title17, § 60004.2(a). As detailed in Comments 5-8, CARB's Draft EA is deficient in several respects—CARB fails to account for energy impacts associated with increased electricity production, impacts on hydrology and water quality from increased hydrogen production, impacts from mining of lithium and other rare earth metals, and cumulative impacts for the State's electrical generation, transmission, and distribution infrastructure.
- *Cost-Effectiveness and Economic Impacts:* As described in Comments 3, 4, and 9, CARB's analysis does not adequately consider significant economic impacts stemming from the ACF

[5] CARB asserts that "[t]he proposed ACF regulation does not prescribe any specific technology or any equipment – rather, it allows regulated entities to acquire affected categories of any medium- and heavy-duty vehicles that have demonstrated that they emit zero emissions of criteria or GHG emissions," ISOR, at 269-70.

Proposal. HSC §§ 38562 and 43018 and APA § 11346.3 require CARB to broadly consider a wide range of impacts to the state's economy, including competitive impacts to California business enterprises.[6] As detailed below, this assessment must consider economic impacts to utilities stemming from the electrification of the transportation sector experienced, as well as lifecycle GHG impacts from ZEV technologies. Further, CARB must consider any less costly but equally effective alternatives pursuant to HSC § 57005. The ISOR and associated rulemaking document do not satisfy this obligation because nowhere does CARB compare the lifecycle emissions analysis of ZEVs and highly efficient low emission vehicles, which impose significantly fewer infrastructure expenses while achieving equivalent or greater GHG emissions reductions on a faster timeline.

- *Technological Feasibility:* Various provisions of the HSC require CARB to consider technological feasibility for proposed motor vehicle standards, including HSC §§ 38560, 38562, 39602.5, 43013, and 43018.[7] This consideration must assess whether vehicle manufacturers have the technology and resources to rapidly shift to producing electric vehicles—a relatively new technology category that requires different resources than traditional vehicles—by the millions, as well as whether there is a reliable supply of fuel (electricity, hydrogen) and the infrastructure to deliver the fuel. CARB must perform a complete and sufficient assessment of the technological feasibility of the ACF ZEV mandates including but not limited to the assessment of mineral resource availability, impacts to the California electric grid, and application of ZEVs to long-distance use cases, as detailed in Comments 5 and 10, below.

Finally, we note that the ACF ISOR does not reference the need to obtain a Clean Air Act waiver from the U.S. Environmental Protection Agency (unlike for both the Advanced Clean Trucks and Advanced Clean Cars II regulations, which did). While the Clean Air Act grants California certain leeway to address localized pollution, the Energy and Policy Conservation Act's broad preemption provision prevents CARB from adopting such regulations when they are "related to" fuel economy, regardless of any accompanying localized pollution benefits.

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

Sincerely,

Tanya DeRivi
Vice President, Climate Policy
WSPA

Attachment A: Detailed Comments

[6] Notably, in its ISOR, CARB cites these provisions as authorizing the ACF Proposal. *See* ISOR, at 236, 269.
[7] CARB cites these provisions as providing authority for the ACF Proposal in the ISOR. *See* ISOR, at 236-37.

WSPA

ATTACHMENT A

Detailed Comments

As noted in the cover letter, detailed comments are provided below:

A.1 The California Air Resources Board (CARB) must address previous comments made by WSPA which include but are not limited to the following.

- The rule should include a compliance pathway for low-NO_X trucks operating on lower-carbon-intensity fuels (including renewable diesel and renewable natural gas), consistent with the expeditious path to criteria air pollutant and greenhouse gas (GHG) reduction goals;
- As noted in recent studies, more than one battery electric (BE) truck would be required to perform the work of a single internal combustion engines (ICE) vehicle.[8,9] CARB does not account for the additional BE trucks that would be needed to replace ICE trucks in the emissions inventory modeling and cost analysis; and
- The proposed rule should include explicit regulatory offramps that link the targets to battery electric vehicle (BEV), fuel cell electric vehicles (FCEV) and related electrical generation/transmission/distribution/charging infrastructure availability in each end-use and duty-cycle.
- WSPA incorporates by reference the previous comments submitted by WSPA throughout the ACF rulemaking process.[10]

Comments on Draft EA/ISOR

A.2 The ISOR and Draft EA fail to assess all of the impacts of the proposed ACF regulation on the statewide particulate matter emission inventory.

As noted on Page 15 of the Draft EA one of the primary objectives of the proposed ACF regulation is to "accelerate the deployment of Zero-Emission Vehicles (ZEVs) that achieve the maximum emissions reduction possible from medium- and heavy-duty vehicles to assist in the attainment of NAAQS for criteria air pollutants."[11] Several regions of the State are in non-attainment of the Federal PM_{10} and $PM_{2.5}$ standards.[12] Hence CARB should analyze the impacts of the proposed ACF regulation on total statewide and region specific PM_{10} and $PM_{2.5}$ emissions inventories and not limit its analysis to just the

8 As noted in the 2020 NCST study on short haul good movement, even with improved battery technology in 2030, 1.2 BE trucks would be required to replace a single diesel truck. This number would be even higher in the early compliance years.

9 Genevieve Giuliano, Maged Dessouky, Sue Dexter, Jiawen Fang, Shichun Hu, Seiji Steimetz, Thomas O'Brien, Marshall Miller, Lewis Fulton. 2020. Developing Markets for Zero Emission Vehicles in Short Haul Goods Movement: A Research Report from the National Center for Sustainable Transportation. Available at: https://escholarship.org/uc/item/0nw4q530. Accessed: October 2022.

10 WSPA. 2021. Comments on Advanced Clean Fleets March Workshop. May 10. Available here: https://www.arb.ca.gov/lists/com-attach/36-acf-comments-ws-UCdTJlUkAzFVDFMy.pdf. Accessed: October 2022. WSPA. 2021. Comments on ACF Regulation September Workshop. October 29. Available here: https://www.arb.ca.gov/lists/com-attach/109-acf-comments-ws-VCNSJ1EgADIKU1c2.pdf. Accessed: October 2022.

11 CARB. 2022. Advanced Clean Fleets Draft Environmental Analysis. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022

12 Ambient Air Quality Standards Designation Tool. Available here: https://ww2.arb.ca.gov/aaqs-designation-tool. Accessed: October 2022.

portions of the particulate matter inventories where it projects reductions with the adoption of this regulation.[13]

While the ISOR provides estimates for the changes in exhaust particulate matter and break wear**, it does not assess particulate matter impacts from tire wear or entrained road dust**. The ZEV vehicles that would replace the existing ICE vehicles under the proposed ACF are generally heavier and would cause greater tire wear and entrained road dust emissions. If heavier zero emission (ZE) trucks are allowed under the regulation, then the impacts of these on increased entrained road dust must be quantitatively evaluated. If overall truck weight restrictions remain enforced, additional ZE trucks would be needed to move the same tonnage of cargo. If truck weight restrictions are increased for ZE trucks, increased emissions of tire wear and entrained road dust must be accounted for. The tire wear and entrained road dust emissions account for >80% of the total PM emissions associated with medium and heavy-duty vehicles. Including these emissions in the analysis could potentially change the conclusions of CARB's analysis and the significance finding of the Draft EA, hence CARB must evaluate these emissions.

As shown in CARB's methodology for Entrained Road Travel and Paved Road Dust,[14] the AP-42 emission factor equation used to estimate paved road dust emissions per vehicle mile travelled is proportional to vehicle weight. ZEVs add significant weight as compared to comparable ICE vehicle models. A study by the American Transportation Research Institute (ATRI)[15] found that the weight of a BEV Class 8 Sleeper Cab tractor is nearly double that of a comparable internal combustion engine vehicle (ICEV), weighing 32,016 pounds (lbs) versus 18,216 lbs. So, converting ICEV to ZEVs under the proposed ACF regulation would significantly increase the average vehicle weight on the California roadways, which in turn would increase the entrained road dust emission factors and emissions.

CARB also assumes that tire wear emissions for ZEV are the same as ICE vehicles and takes no consideration of how the significant increase in ZEV vehicle weight as compared to ICE vehicles will increase tire wear emissions. The 2016 study titled "Non-Exhaust PM Emissions from Electric Vehicles"[16] concluded that increased vehicle weight would increase both tire wear and entrained road dust emissions. The assumption that a ZEV, which would have a higher average weight, would have the same tire wear emissions as an ICE is made without citation and should be reassessed and evaluated in the ACF ISOR.

The cost benefit analysis in the Standardized Regulatory Impact Assessment (SRIA) for the proposed ACF estimated monetized health benefits associated with the reductions in exhaust and brake wear particulate matter emissions. These benefits were used to calculate the benefit-cost ratio of the proposed regulation. As noted in the above

[13] California Health & Safety Code ("HSC") § 39602.5 requires CARB to consider ambient air quality standards and attainment in its ACF Proposal.

[14] CARB. Miscellaneous Process Methodology 7.9: Entrained Road Travel, Paved Road Dust. 2021. Available here: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/2021_paved_roads_7_9.pdf. Accessed: October 2022.

[15] ATRI. Understanding the CO_2 Impacts of Zero-Emission Trucks. 2022. Available here: https://truckingresearch.org/wp-content/uploads/2022/05/ATRI-Environmental-Impacts-of-Zero-Emission-Trucks-Exec-Summary-5-2022.pdf. Accessed: October 2022.

[16] Timmers, Victor and Peter Achten. "Non-exhaust PM emissions from electric vehicles". March 2016. Available here: http://www.soliftec.com/NonExhaust%20PMs.pdf. Accessed: October 2022.

paragraphs there are other portions of the total particulate matter emissions (e.g., tire wear and entrained road dust) that would increase as a result of the proposed ACF and have not been considered. CARB should complete their benefit-cost analysis to consider all changes in total particulate matter emissions and associated health impacts.

A.3 CARB did not conduct a full life-cycle greenhouse gas emissions assessment for the vehicle/fuel system to assess GHG emission impacts of their proposal and alternatives. This results in a misrepresentation of the impacts of the proposed regulation.

To understand the potential GHG impacts of the proposed ACF regulation, CARB **must quantitatively assess the proposal.** This should include cost-effectiveness and cost-benefit analysis.[17] CARB's proposal fails to consider the following:

- Upstream fuel cycle GHG emissions are not considered, and
- GHG emissions associated with vehicle production and end of life-cycle (e.g., recycling) changes required by the proposed regulation are not considered.

Taken together, these could be significant, particularly for battery production impacts associated with battery electric vehicles and fuel cell electric vehicles as compared to ICEVs.

Assessing the upstream fuel cycle GHG emissions is necessary when considering zero emission vehicles due to the nature of GHG emissions as global pollutants. GHG emissions are global pollutants that enter the atmospheric carbon stock and cause global consequences, no matter the point of origin. While GHG emissions may not be present at the tailpipe for a (so-called) ZEV technology, these emissions still are emitted elsewhere and therefore must be accounted for in the benefit-cost and emissions reductions analyses. Not including the upstream emissions is misleading and overstates the potential emission reductions.

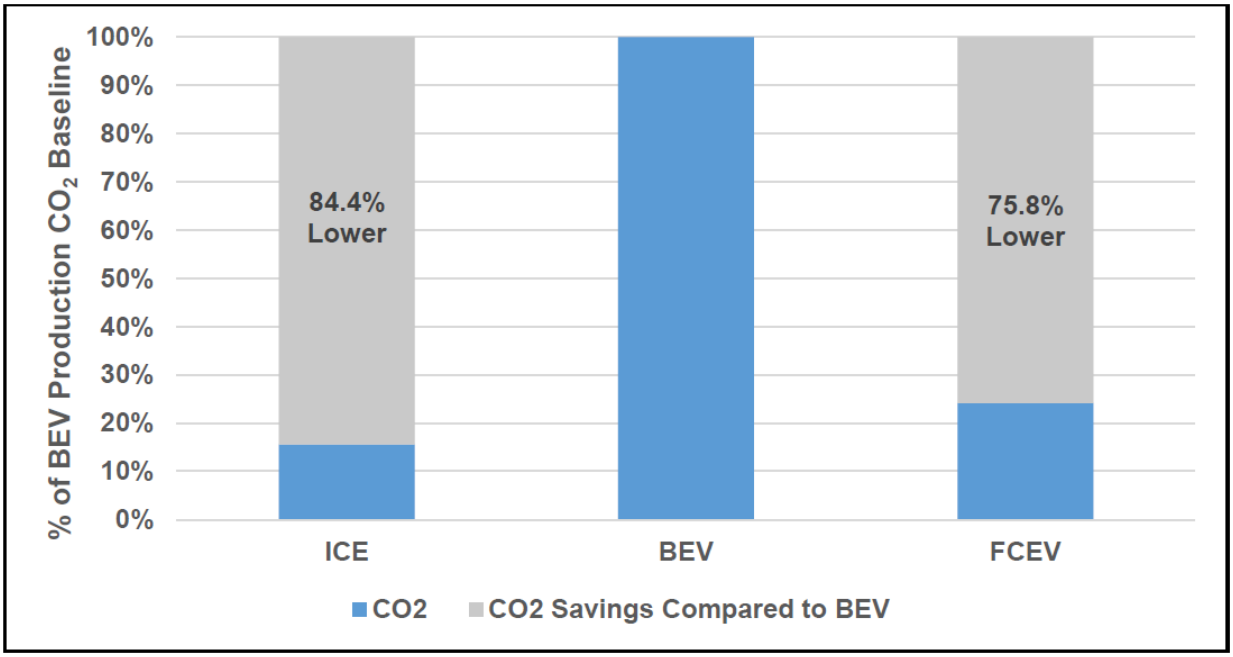
Additionally, CARB is inconsistent in citing the emissions they have considered. In both Appendix C: Standardized Regulatory Impact Assessment and the ISOR it is specifically noted the assessment "is focused on tank-to-wheel (TTW) emissions, and does not include upstream emissions."[18,19] But the Draft EA claims that "upstream emissions associated with the generation of electricity used for ZEVs… are considered in the reduction benefits of the Proposed Project."[20] CARB must update their analyses to include the upstream emissions for all fuels including electricity in the SRIA, ISOR, and the Draft EA.

Additionally, the GHG emissions associated with vehicle production should be accounted for in the analysis. This is especially important for ZEV technologies, which have components (i.e., batteries) that generate significant additional emissions during vehicle

[17] HSC §§ 38560, 39602.5, and 43013 require CARB to assess the cost-effectiveness of a regulation.
[18] CARB. 2022. Appendix C: Original Standard Regulatory Impact Assessment Submitted to Department of Finance. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appc.pdf. Accessed: October 2022.
[19] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.
[20] CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022.

production. A recently published study by ATRI analyzed the life-cycle emissions of a Class 8 Sleeper Cab vehicle and found that the vehicle production emissions for BEVs to be ~6 times higher than the corresponding ICEV counterpart (**Figure 1**).[21] CARB has claimed in the Advanced Clean Cars II (ACC II) Response to Comments (RTC) that "the emission benefits from the use of these materials (e.g. battery and vehicle materials) in BEVs would ultimately offset the emissions from combustion of gasoline, diesel, and other fossil fuels from the development and use of these battery materials resources."[22] However this argument is unfounded. Accounting for the vehicle cycle emissions could potentially change the conclusions of CARB's analysis and therefore must be assessed in order to understand the full environmental impacts of each technology.

Figure 1. Vehicle Cycle Emissions from Class 8 Sleeper Cabs[23]



While the ISOR estimated the reductions in tailpipe GHG emissions from the proposed ACF regulation, it fails to fully quantify the changes in upstream (well-to-tank) GHG emissions or the potential increases in vehicle cycle emissions that would occur with the implementation of this proposal. CARB must fully assess the GHG emissions impact that this regulation could have on the global carbon stock. Any assessment that does not recognize the full life-cycle GHG impacts misrepresents the actual environmental effects of the proposed regulation and would lead to factually incorrect conclusions that undermine any rationale for adoption of the proposed rule. Inclusion of the life-cycle emissions would allow for a better pathway to achieve the emission reduction objectives.

[21] ATRI. 2022. Understanding the CO2 Impacts of Zero-Emission Trucks. May 3. Available here: https://truckingresearch.org/2022/05/03/understanding-the-co2-impacts-of-zero-emission-trucks/. Accessed: October 2022.

[22] CARB. 2022. Response to Comments on the Draft Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciirtc1.pdf.

[23] Ibid. ATRI. 2022. Understanding the CO2 Impacts of Zero-Emission Trucks. May 3. Available here: https://truckingresearch.org/2022/05/03/understanding-the-co2-impacts-of-zero-emission-trucks/. Accessed: October 2022.

A.4 CARB should include low-CI, low-NO_X combustion technologies in its evaluation of alternatives since that pathway can meet the objectives of the regulation, as listed below.

The purpose of the California Environmental Quality Act (CEQA) is to identify project alternatives that can achieve the proposed project's objectives in the least environmentally impactful way. Low-NO_X trucks and renewable, low-CI fuels are commercially available in large scale today. As discussed in previous comment letters and Ramboll's "Multi-Technology Scenarios: Heavy-Heavy Duty Truck Sector," deploying low-NO_X vehicles coupled with low-CI fuels could deliver earlier and more cost-effective NO_X and GHG emission reduction benefits than the ZEV-centric approach the draft ACF regulation has taken.[24] The study compared the well-to-wheel emissions of different vehicle types, taking into consideration the emissions associated with fuel production and tailpipe emissions, and found that the environmental goals of the program could be met sooner and with greater certainty given that these technologies are commercially available. The growing potential for renewable fuels with negative carbon intensities provide further opportunities to achieve greater GHG emission reductions.

Further, many of these renewable fuels do not require the extensive infrastructure build-out that would be required to implement the ZEV-centric approach in the ACF proposal, allowing for an immediate delivery of emissions benefits and minimizing the costs of and risk for delays in the proposed regulation. Hence, CARB must consider and evaluate these technology/fuel pathways as alternatives to the proposed ACF regulation rather than dismissing them as "not meeting the objectives."[25]

The objectives of the ACF as listed in the ISOR,[26] do not preclude the consideration of these technology/fuel pathways as described below:

- Objective 1 is to "accelerate the deployment of ZEVs that achieve the maximum emission reductions possible."[27] This does not preclude the deployment of other technology options, such as low-CI, low-NOx combustion engines. For example, the Ramboll HHDT Case Study, [28] which CARB has had access to for over a year, showed that a ZEVs-only strategy does not achieve the maximum emission reductions possible. A fleet mix that deployed a wider range of technologies, including ZEVs, FCEVs, and low-CI, low-NOx combustion engines, out-performed the ZEV-only deployment strategy in the near-term and achieved equitable emission reductions in the long-term.
- Objectives 2 and 3 are to "reduce the State's dependence on petroleum as an energy resource and support the use of diversified fuels in the state's transportation fleet" and "decrease GHG emissions in support of statewide GHG reduction goals."[29] There are

[24] Ramboll "Multi-Technology Scenarios: Heavy-Heavy Duty Truck Sector". 2021. Available here: https://www.arb.ca.gov/lists/com-attach/78-sp22-kickoff-ws-B2oFdgBtUnUAbwAt.pdf. Accessed: October 2022.
[25] HSC § 57005 requires CARB to consider any less costly but equally effective regulatory alternatives.
[26] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.
[27] Ibid.
[28] Ramboll "Multi-Technology Scenarios: Heavy-Heavy Duty Truck Sector". 2021. Available here: https://www.arb.ca.gov/lists/com-attach/78-sp22-kickoff-ws-B2oFdgBtUnUAbwAt.pdf. Accessed: October 2022.
[29] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

many renewable liquid and gaseous options that already serve as alternatives to petroleum fuels. Recent data from CARB's LCFS website shows that 800,000 gallons per day of biodiesel, 2.5 million gallons per day of renewable diesel and over 170 million diesel gallon equivalents of renewable natural gas were supplied to the California fuels market in 2021.[30] The renewable diesel and biodiesel together supplied 34% of total California diesel demand.[31] In a multi-technology/multi-fuel alternative, renewable fuels can already serve today and can continue to serve in the future as low-CI fuel options to reduce statewide GHG emissions.

- Objective 6 is to "lead the transition of California's medium- and heavy-duty transportation sector from internal combustion to all electric powertrains."[32] However, CARB's mission under the Clean Air Act is to "promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy,"[33] not to mandate a specific vehicle technology and this listed objective may not legally be included in the regulatory framework.

While the Draft EA included alternatives that considered low-NO_X trucks and renewable, low-CI fuels, these alternatives were crafted in a way that they could be easily rejected and in some cases the reasoning for rejecting the alternatives was flawed. See additional discussion on Alternatives 3 and 8 below:

- Alternative 3: the Best Available Control Technology (BACT) concept would allow for the purchase of a ZEV, if available, then near zero emission vehicle (NZEV), and then the cleanest certified engine for compliance. CARB rejected this alternative because the emissions benefits of additional cleaner engines in the fleet would already be accounted for in the Heavy-Duty Omnibus regulation, California's Low Carbon Fuel Standard program, and the federal Renewable Fuel Standard (RFS). This reasoning is flawed for the following reasons: (a) the ACF regulation is a fleet rule; Alternative 3 would require faster turnover of the vehicles to the cleanest certified engine, thereby providing additional near-term NO_X emissions while ZEV fueling infrastructure develops, and (b) the fuels used to power ZEVs (hydrogen and electricity) are also covered under the LCFS program.
- Alternative 8 would allow fleets to use natural gas trucks as well as ZEVs to meet the ZEV requirements of the proposed ACF until 2040, when the 100% ZEV sales requirements begin. CARB rejected this alternative by stating that the shift of combustion engine purchases from diesel and gasoline to natural gas would not achieve emission reductions when compared to the baseline because the Heavy-Duty Omnibus regulation allows engine manufacturers to average their engine emissions to meet the standard. There is no rational basis for excluding natural gas trucks that meet the optional low-NOx standards as the alternative to ZEVs given that CARB's

[30] CARB. 2022. Low Carbon Fuel Standard Quarterly Data Spreadsheet. July 31. Available here: https://ww2.arb.ca.gov/sites/default/files/2022-08/quarterlysummary_073122_0.xlsx. Accessed: October 2022.
[31] CARB. 2022. EMFAC Emissions Inventory. Available here: https://arb.ca.gov/emfac/emissions-inventory/d1a08e88bd07b3f76564d6d3b1fa544ec97e6400. Accessed: October 2022.
[32] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.
[33] CARB. Available here: https://ww2.arb.ca.gov/about. Accessed: October 2022.

2016 Mobile Source State Implementation Plan (SIP)[34] demonstrated NO_X reductions could be achieved by low-NO_X trucks and CARB has certified numerous low-NOx truck engines.[35] Another reason that CARB offers for rejecting this natural gas truck alternative is that "ICEV purchases … would not reduce GHG emissions."[36] Instead CARB could have imposed an additional requirement that the natural gas vehicles that qualify as alternatives to ZEVs use renewable low-CI natural gas. Such an approach would help achieve GHG reductions that could be similar to or even greater than those provided by the ZEVs.

A.5 The cumulative impacts analysis for the proposed ACF regulation is inadequate.

The Draft EA references the environmental analyses of the 2030 Target Scoping Plan Update of 2017 and the Community Air Protection Blueprint of 2018. But neither plan evaluates the impacts of the increased electrical generation, transmission, and distribution infrastructure that would result from a regulation such as the proposed ACF. Furthermore, both of these documents are in the process of being updated, as required under statute, with significant changes that are reasonably foreseen and must be acknowledged and included along with ACF in this cumulative impact analysis.

As discussed later in Comment A.9 through Comment A.12, an assessment of the impacts of the proposed ACF on the State's electric grid has to be analyzed in the Draft EA. Besides this, the cumulative impacts of the proposed ACF and the recently adopted Advanced Clean Cars II regulation on the State's electrical generation, transmission, and distribution infrastructure should be evaluated and disclosed in the Draft EA.

A.6 The Draft EA analysis of the impacts of the proposed ACF regulation on mineral resources is inadequate as it fails to quantify the amount of metals that would have to be mined for battery production.

While the Draft EA lists the estimated reserves of lithium, platinum, and other elements in Tables 5 through 10, it fails to estimate the quantity of these elements that would have to be mined to produce the ZEVs required by the proposed ACF regulation.[37] CARB must quantitatively assess the impact the regulation will have on the state/worldwide demand of lithium and other rare earth metals, and the emissions that will be produced as a result of mining and shipping these materials.

The Draft EA should consider environmental impacts from mining of semi-precious metals and potential mitigations. The document does not address the potential hazards, construction, noise, or other impacts and potential mitigations for these impacts. There is mining of lithium that is likely to occur within the state (e.g., Lithium Valley) and CARB must, at the very least, assess the additional mining of rare earth metals that would be driven by the additional ZEVs required by this regulation and analyze the potential impacts associated with additional lithium mining in the State. Additionally, as noted

[34] Available: https://ww2.arb.ca.gov/resources/documents/2016-state-strategy-state-implementation-plan-federal-ozone-and-pm25-standards and https://ww3.arb.ca.gov/planning/sip/2016sip/rev2016statesip.pdf. Accessed: October 2022.
[35] Available: https://ww2.arb.ca.gov/new-vehicle-and-engine-certification-executive-orders and https://www.epa.gov/sites/default/files/2021-01/documents/420f21002.pdf. Accessed: October 2022.
[36] CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022.
[37] Ibid.

above in Comment A.3, CARB must assess the GHG impacts of lithium mining and processing to analyze the full lifecycle GHG impacts of this regulation.

A.7 The Draft EA fails to evaluate the impacts of the large quantities of water that would be needed for renewable hydrogen production on the State's water supply.

CARB has not analyzed the impacts on hydrology and water quality that increased hydrogen production would necessarily require. CARB must quantify and assess the impact that increasing hydrogen production will have on the State's water supply. This is important because the State is already facing moderate to extreme drought conditions[38] and increasing water demand would put additional strain on an already extended supply system. The Hydrogen Decarbonization Pathways Report by the Hydrogen Council projects that gross water demand for hydrogen in 2030 could range from 9.9 kilogram (kg) water per kg of H_2 (lower heating value [LHV]) to 7,427.6 kg water per kg of H_2 (LHV) depending on the feedstock used.[39]

Comments on Electric Grid

A.8 The Draft Environmental Assessment fails to evaluate the operational impacts of the proposed ACF regulation on the State's energy demand and necessary transmission/distribution infrastructure.

While the Draft EA states that the proposed program "may also impact peak and based load period demand for electricity and other forms of energy," it fails to quantify the changes in energy demand.[40] In CARB's ACC II Response to Comments document, CARB asserted that "studies have shown no major technical challenges or risks have been identified that would prevent a growing electric vehicle fleet at the generation or transmission level, especially in the near-term."[41] One of the studies[42] cited for this claim that researched the grid's future capacity based on historical generation clearly stated that:

> "…this historical comparison overlooks factors that have changed energy generation over the years, such as market decoupling of energy supply from vertically integrated utilities. These periods of high growth in generation correspond to times in which the installation of large baseload generation (fossil and nuclear) were common. This may not be the case in the future, and other factors such as how ready utilities are to install new capacity, sufficient utility

[38] State of California: California Drought Action. Current Drought Conditions. Available here: https://drought.ca.gov/current-drought-conditions/. Accessed: October 2022.
[39] Hydrogen Council. 2021 Hydrogen Decarbonization Pathways. January. Available here: https://hydrogencouncil.com/wp-content/uploads/2021/01/Hydrogen-Council-Report_Decarbonization-Pathways_Part-1-Lifecycle-Assessment.pdf. Accessed: October 2022.
[40] CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022.
[41] CARB. 2022. Response to Comments on the Draft Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciirtc1.pdf. Accessed: October 2022.
[42] US Drive. 2019. Summary Report on EVs at Scale and the U.S. Electric Power System. November. Available here: https://www.energy.gov/sites/prod/files/2019/12/f69/GITT%20ISATT%20EVs%20at%20Scale%20Grid%20Summary%20Report%20FINAL%20Nov2019.pdf. Accessed: October 2022.

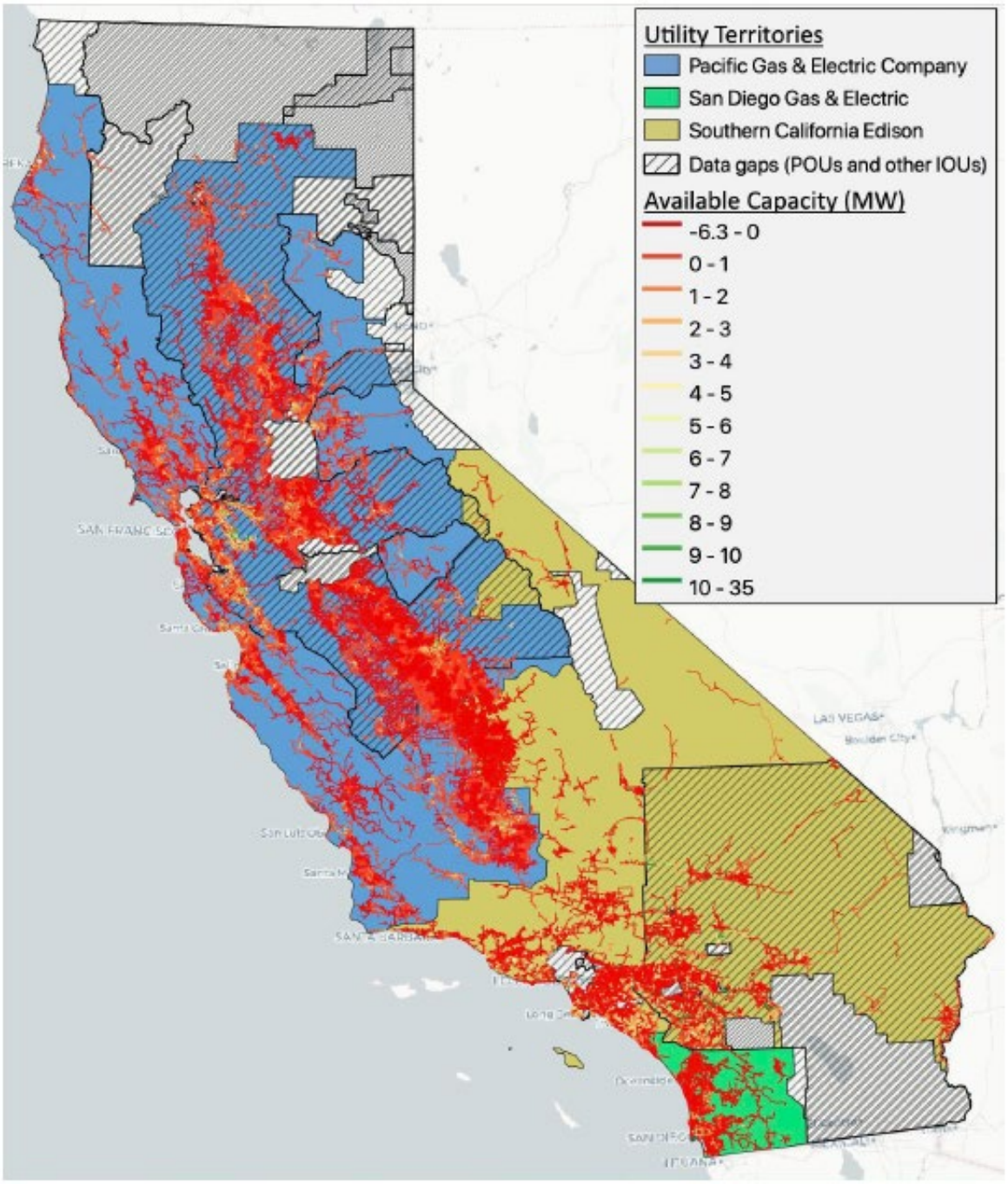
> labor, capital, land use, environmental regulations, reliability requirements, and the policy environment should all be considered."

As noted in the quote above, the readiness of utilities to install new capacity must be assessed before asserting that the grid is able to handle the capacity EVs (especially heavy-duty EVs) will require.[43] The Capacity Analysis from California Energy Commission's (CEC) EDGE Model (**Figure 2** below, obtained from Page 49 in the Final ACC II EA[44]) shows the grid has no additional capacity to add electrical load for charging EVs in most circuits. You can see this in numerical terms in **Figure 3** (obtained from Virtual Medium and Heavy-duty Infrastructure Workgroup Meeting - Electricity and the Grid on January 12, 2022), which details the capacity of circuits to integrate additional load. This figure illustrates that 30% to 76% of circuit segments have no capacity to integrate additional load. Thus, no appreciable charging capacity can be added to most of these circuits without the expenditure and time for additional construction of needed transmission and distribution infrastructure.

[43] HSC §§ 38560, 38562, 39602.5, 43013, and 43018 require CARB to assess technological feasibility for its ACF Proposal.

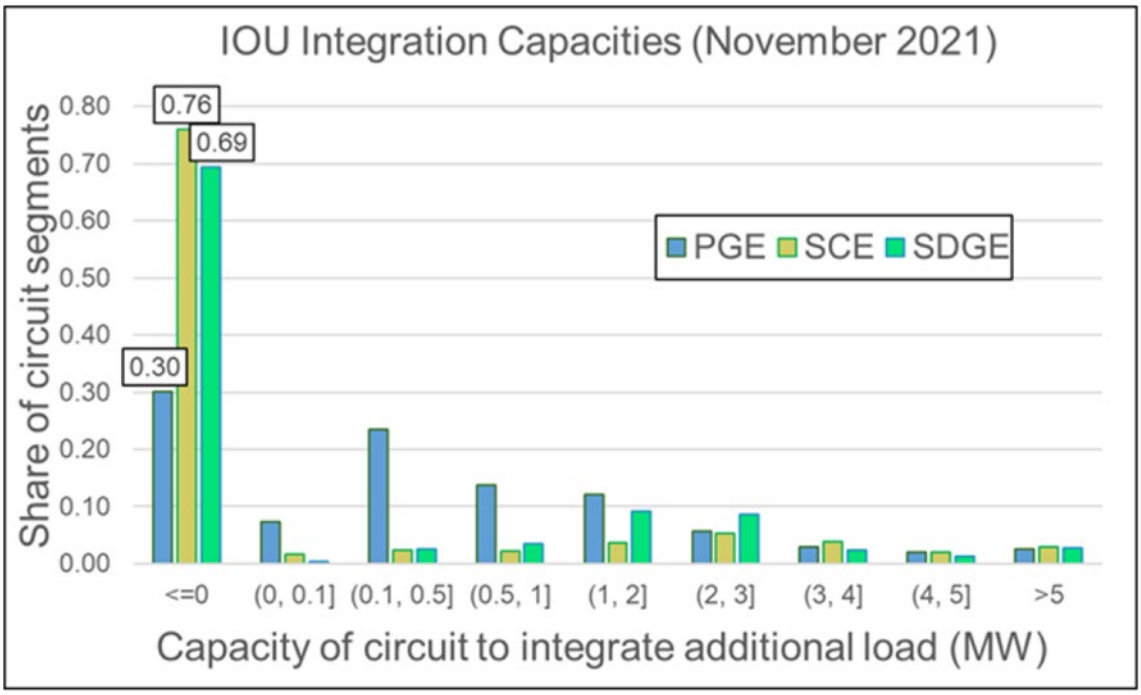
[44] CARB. 2022. Final Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciifinalea.docx. Accessed: October 2022.

Figure 2. Capacity Analysis from CEC's EDGE Model[45] (dark red indicates no available additional capacity)



[45] CARB. 2022. Final Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciifinalea.docx. Accessed: October 2022.

Figure 3. Capacity of circuits to integrate additional loads[46]



The replacement of ICEVs with ZEVs under this program would result in a significant shift in the type of energy used to fuel the transportation sector that would generate significant decreases in liquid fuel use and significant increases in electricity and hydrogen use. The Draft EA cannot reasonably claim to assess the impact on the State's energy demand without quantifying these changes in energy use for various fuel types.

CARB has not provided any analysis of the feasibility of the proposed regulation given the significant increase of charging infrastructure, electrical generation and transmission and distribution infrastructure that would be required to support a ZEV fleet.

CARB has cited growth in the electric utilities sector and noted that new infrastructure will be needed to support this transition, however, CARB has failed to account for the costs of the infrastructure needed for this regulation in the SRIA, and have instead ascribed benefits to the electric utilities sector for job growth. CARB's analysis is incomplete and misleading. CARB must evaluate the full economic impact to electric utilities because of this regulation rather than just claim the benefits while ignoring the associated costs.

[46] Presented during the January 12, 2022 CARB Virtual Medium and Heavy-Duty Infrastructure Workgroup Meeting - Electricity and the Grid (Part 1). Workgroup meeting recording available here: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events. Accessed: October 2022.

A.9 The Draft EA must analyze the operational peak and base electricity demand associated with the proposed project and evaluate the feasibility and costs of upgrading the grid to meet the demand within the timeframe of the proposed project.

CARB must quantitatively assess the energy resource inadequacy to meet proposed ACF regulatory requirement issues raised by stakeholders. In addition, for the CEQA analysis in the Final EA, CARB would have to either provide substantive information that the effect of inadequate energy/infrastructure resources are less than significant and/or assess mitigations for the likely significant impacts.[47] The cumulative impact assessment must also look at the cumulative effect of the ACF and the approved ACC II regulation.[48]

In the Final ACC II EA, CARB recognized that "electrification of California's transportation sector, particularly when combined with increased electrification of the state's building stock, will pose a significant new challenge to grid planning and require investments in transmission and local distribution systems".[49] Using the EVI-Pro 2 model, CARB projected the electricity demand for light-duty vehicle (LDV) charging in 2030 over a 24-hour period, reaching around 5,400 megawatts at peak charging times, increasing electricity demand by up to 25% (**Figure 4**). It is equally if not more important for CARB to conduct a similar analysis on the impacts to the electricity grid due to the ACF regulation because of the significantly greater power required for heavy-duty vehicle (HDV) chargers, 150 kilowatts (kW) or greater for Class 7-8 tractors versus 19 kW or less required for LDV Level 2 chargers. The heavy localization of future HDV charging infrastructure will compound this issue, straining local electricity infrastructure, given that CARB expects most electric vehicle supply equipment (EVSE) to be installed in central depots or yards where trucks are parked overnight.[50]

CARB must assess the level of infrastructure upgrades that would be required to support the peak load under these scenarios and whether it is feasible to upgrade the grid infrastructure to meet the demand within the timeframe of the proposed project. A representative from an energy utility commented during the March 10, 2022 public workshop that their 10-year planning window may need to be expanded to 15 years. Long lead items such as high-scale transmission can take upwards of 7-10 years to build, while distribution infrastructure for individual HDV projects require a minimum of 4 months of utility construction and can take 18-24 months to complete overall.[51] Given that 1.5 million Class 2b-8 ZEVs would need to be deployed statewide by 2048 and the phased-in fleet

[47] CEQA requires that the Draft EA and Final EA contain "[a] discussion and consideration of environmental impacts, adverse or beneficial, and feasible mitigation measures which could minimize significant adverse impacts identified." Cal. Code Regs. tit.17, § 60004.2(a).

[48] *See id.*

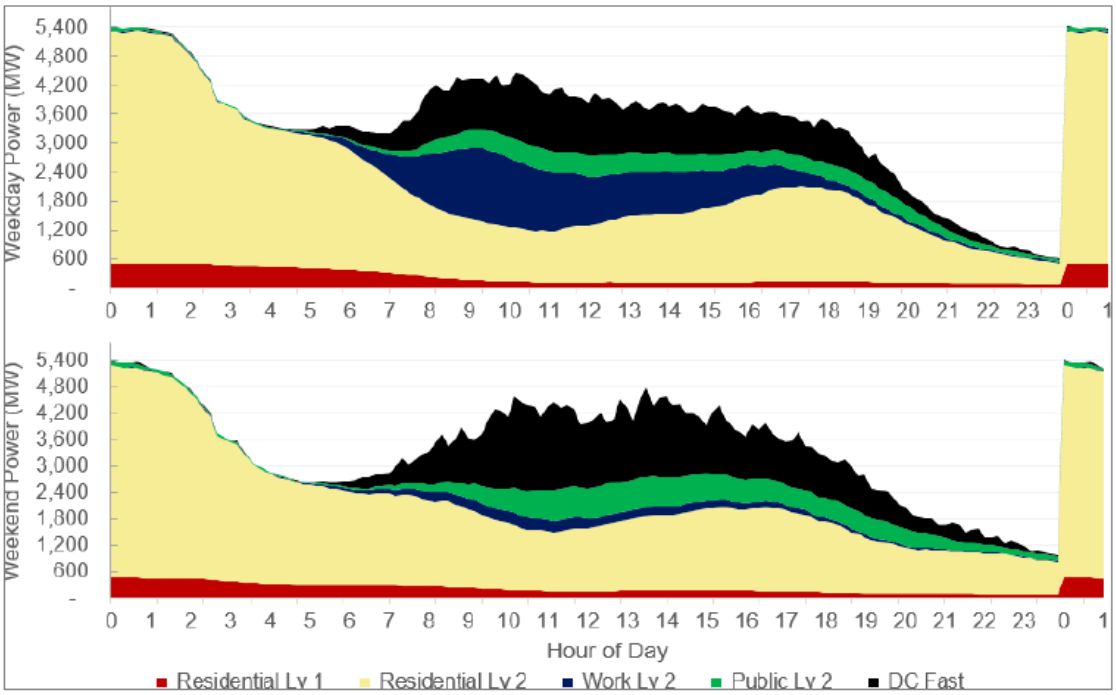
[49] CARB. 2022. Final Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciifinalea.docx. Accessed: October 2022.

[50] CARB. 2022. Appendix C: Original Standard Regulatory Impact Assessment Submitted to Department of Finance. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appc.pdf. Accessed: October 2022.

[51] CARB Workshop Recording of ACF Virtual Medium and Heavy-Duty Infrastructure Workgroup Meetings - Electricity and the Grid (Part 2). March 2022. CARB Workshop web page (https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events) includes link to recording at: https://youtu.be/uLYrDh-pKQI. Accessed: October 2022.

transition begins in 2024, there seems to be too little time to complete these necessary upgrades.[52]

Figure 4. ACC II EA Projected 2030 Statewide Plug-in EV Charging Load for Intraregional Travel of 8 Million LD ZEVs in EVI-Pro2[53]



CARB claims in the ACF Draft EA that "increased deployment of ZEVs could result in a relatively small increase [in] production of electricity and hydrogen fuel"[54] and would have a less than significant cumulative impact to the energy sector without citing any data, modeling, or sources for this claim. Given the accelerated Senate Bill 100 (2018) and Senate Bill 1020 (2022) renewable energy targets for California's energy generation and the cumulative energy impacts of electrification under ACC II, ACF, and measures for building electrification, the state will become ever more reliant on its electric infrastructure in the coming decades. Although CARB states that the long-term operational-related utilities and service systems impacts are "beyond the authority of CARB and not within its purview," CARB has a responsibility as the CEQA lead agency to ensure that the energy impacts of regulations it puts forward are assessed and consistent with the proposed regulatory requirements and are technologically feasible within the timeframes it proposed.

[52] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.
[53] CARB. 2022. Final Environmental Analysis for the Advanced Clean Cars II Program. August 24. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciifinalea.docx. Accessed: October 2022.
[54] CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022.

A.10 CARB did not consider costs for updates to the electric grid infrastructure or costs for recycling and disposal of EV batteries in their calculation of the benefit-cost ratio for the deployment of ZEV technologies.

CARB estimated a benefit-cost ratio of 1.5 for the proposed ACF regulation in the SRIA.[55] This value was calculated as a ratio of the benefits associated with the rulemaking to the total costs for vehicle ownership. The list of costs considered are summarized in Table 38 of the SRIA and provided here for easy reference: vehicle cost (vehicle cost, sales tax, federal excise tax, residual values), fuel cost (gasoline, diesel, electricity, hydrogen fuel cost, fuel taxes), LCFS revenue, infrastructure costs (depot/retail charger costs, infrastructure upgrades, charger maintenance), maintenance costs (vehicle maintenance costs, maintenance bay upgrades), midlife overhaul costs, and other costs (diesel exhaust fluid [DEF] consumption, registration fees, depreciation, insurance, transitional costs, reporting costs). Additionally, the health benefits associated with avoided health outcomes of fine particulate matter ($PM_{2.5}$) emissions and changes in tax/fee revenues for state and local governments are incorporated into the calculation.

Similar to CARB's analysis for the ACC II regulation, while the costs considered in the calculation include the costs on the customer side of the meter, CARB has failed to account for:

- costs to upgrade the electric grid infrastructure for additional generation, distribution, and transmission necessary to support BEVs[56] (i.e., CARB staff claims, without foundation, these costs would be embedded in fuel costs on page 75 of the ISOR), and
- costs for recycling and disposal of the electric vehicle batteries and the potential environmental hazards that may result from recycling and disposal.

Within the ISOR, CARB staff states that "costs are not incorporated on the utility's side of the meter as those are the responsibility of the utility as specified in Assembly Bill 841 and are implemented by each IOU [investor owned utility]" despite the fact that these costs would be a direct impact of this regulation. This regulation would cause increases to the State's energy demand that will directly require upgrades to the state's energy infrastructure.[57]

As noted in the California Energy Commission's "Deep Decarbonization in a High Renewables Future",[58] these costs would be substantial. That study estimated a cumulative cost of $0.52 trillion from 2020-2030, $0.77 trillion from 2020-2035, and $1.82 trillion from 2020-2050 for upgrading and maintaining the electric grid under a High Electrification Scenario to meet the State's GHG targets of 40% reduction from 1990 levels by 2030 and 80% reduction by 2050. Additionally, the Senate Bill 1020 legislation[59]

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[55] CARB. 2022. Appendix C: Original Standard Regulatory Impact Assessment Submitted to Department of Finance. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appc.pdf. Accessed: October 2022

[56] CARB. 2022. Staff Report: Initial Statement of Reasons. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf. Accessed: October 2022.

[57] Ibid.

[58] E3 2018 Deep Decarbonization PATHWAYS Report. Available here: https://www.energy.ca.gov/sites/default/files/2021-06/CEC-500-2018-012.pdf. Accessed: October 2022.

[59] SB1020, Chapter 361, Statutes of 2022. Available at: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB1020. Accessed October, 2022.

sets new interim targets for renewable energy requirements in California and requires 90% zero-carbon energy by 2035 and 95% by 2040. Senate Bill 1020 also requires that the policy "shall not increase carbon emissions elsewhere in the western grid." This acceleration could require additional investments to be needed earlier and thus could create additional challenges especially with the additional demand that would be generated by the penetration of zero-emission trucks. It is noteworthy that the High Electrification Scenario assumes only an 18% penetration of ZEV in the in-state MDV/HDV vehicle fleet by 2050, which is significantly lower than that proposed under the ACF. Hence, costs for grid infrastructure upgrades and maintenance could be much higher and CARB should evaluate and disclose these costs.

CARB similarly fails to discuss costs for recycling and disposal of the electric vehicle batteries and the potential environmental hazards that may result from recycling and disposal, despite recognizing that such impacts exist in the Draft EA. A report by Kelleher Environmental entitled "Research Study on Reuse and Recycling of Batteries Employed in Electric Vehicles" highlights some key concerns that may result in substantial costs associated with the regulation.[60] Both the reuse and recycling of EV batteries are hindered by a lack of collection infrastructure necessary to bring large numbers of batteries to a central location to exploit economies of scale. Transportation is expensive and highly regulated as used EV batteries are classified as hazardous waste. Further, the technologies that promise to achieve high recovery rates for the metals contained in EV battery cathodes have not yet been proven at commercial scale and there is uncertainty regarding aftermarket values for the materials recovered, particularly as battery chemistries continue to evolve.

As stated in the Draft EA, California is the largest market for EVs in the U.S. and by 2027, an estimated 45,000 EV batteries could be retired within the state.[61] CARB acknowledges that the proposed project could result in a significant cumulative impact on mineral sources.[62] Such an impact should be included in the benefit-cost ratio of the Proposed ACF regulation.

A.11 CARB's sensitivity analysis does not consider the potential impacts of ACF and other regulations, such as ACC II, to California's electricity grid and electric fuel costs and only evaluates a fixed 10% increase in costs.

CARB's projected electricity costs for the ACF Total Cost of Ownership[63] are modeled using CEC's "Revised Transportation Energy Demand Forecast, 2018-2030"[64] and U.S. Energy Information Administration (EIA) 2018 Annual Energy Outlook.[65] However, neither

[60] Kelleher Environmental. 2020. Research Study on Reuse and Recycling of Batteries Employed in Electric Vehicles Prepared for Energy API. November. Available here: https://www.api.org/-/media/Files/Oil-and-Natural-Gas/Fuels/EV%20Battery%20Reuse%20Recyc%20API%20Summary%20Report%2024Nov2020.pdf. Accessed: October 2022.

[61] CARB. 2022. Appendix D: Draft Environmental Analysis for the Advanced Clean Fleets Rule. August 30. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appd.pdf. Accessed: October 2022.

[62] Ibid.

[63] CARB. 2022. Total Cost of Ownership Discussion Document. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appg.pdf Accessed: October 2022.

[64] CEC. 2018. "Revised Transportation Energy Demand Forecast, 2018-2030". April. Available here: https://efiling.energy.ca.gov/getdocument.aspx?tn=223241. Accessed: October 2022.

[65] EIA. 2018. Annual Energy Outlook 2018. February. Available here: https://www.eia.gov/outlooks/archive/aeo18/. Accessed: October 2022.

of these projections consider the potential impacts of ACC II and ACF on the electricity grid infrastructure, generation requirements, and future electricity costs, leading to potentially significant underestimations and uncertainties in future electric fueling costs.[66]

Figure 12 in the Total Cost of Ownership document shows little change in the costs of charging from 2027 through 2040 for all vehicle classes, from $0.15 to $0.25/kW hour (kWh) for Class 2b-3 Cargo Vans through Class 8 Day Cabs and $0.40 to $0.45/kWh for Class 8 Sleeper Day Cabs.[67] The sensitivity analysis applies a fixed factor of 10% to the costs provided as a seeming upper bound for the ZEV fuel costs without accounting for potential spikes to electricity costs as a result of increased electricity demand from the wide array of programs within the 2022 State SIP Strategy, including ACF and ACC II.

CARB provides no foundation for its assumption that electricity costs will remain constant in the future.

Comments on Draft ACF Language

WSPA member companies operate truck fleets in their operating facilities and for transporting crude oil, finished products to retail locations, and other materials. The proposed ACF would impact these truck fleets by 1) requiring new ZEV truck purchases and 2) potentially increasing operating costs.

The ACF could change ownership of truck fleets. Current large fleets that would be subject to the rule could experience higher truck purchase costs and higher operating costs than smaller fleets not subject to the rule. This could change truck ownership, discouraging large fleets.

Trucks delivering fuel from terminals to retail locations also optimally operate with cargo loads near the maximum total vehicle operating weight limit. Future BEV and/or FCEV trucks could be heavier than current ICE trucks, which would reduce the volume of cargo that they could haul while still meeting the weight limits. If this were to prove to be true, then fuel haulers could only respond by making more trips with the same number of trucks to deliver the same volume of fuel, and/or by purchasing and using more trucks. Both situations could increase operating costs for fuel haulers which could translate to higher costs to the consumer. We encourage CARB to consider these business realities in its consideration of the ACF, and to consider the following issues with the currently drafted ACF language.

A.12 The proposed ACF regulation requires fleet owners to use specific kilowatt-hour per mile values to estimate the ZEV ranges for the daily usage exemption; however, there are no requirements for manufacturers to meet these kilowatt-hours per mile values in the Advanced Clean Trucks (ACT) regulation.

Within the Daily Usage Exemption in the High Priority and Federal Fleets and State and Local Governments regulations, CARB requires fleet owners to convert the rated energy capacity of the commercially available ZEV into “range of the vehicle” in miles using a factor based on vehicle class established by the regulation. CARB has provided no documentation to explain why these values were selected.

[66] CEC. 2018. “Revised Transportation Energy Demand Forecast, 2018-2030”. April. https://efiling.energy.ca.gov/getdocument.aspx?tn=223241. Accessed: October 2022.
[67] CARB. 2022. Total Cost of Ownership Discussion Document. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/appg.pdf Accessed: October 2022.

Given that there is no complementary energy efficiency standard for ZEVs in the Advanced Clean Trucks rule or any other manufacturer requirement for heavy-duty ZEVs other than a minimum all-electric range of 75 miles for NZEVs,[68] there is no guarantee that the vehicles available for fleets to purchase will have energy efficiencies remotely resembling the values presented in the regulation. CARB should instead base this exemption on the real-world mileage and duty cycles achieved by the ZEVs or establish manufacturing criteria that supports the needs of fleet owners.

A.13 The provided exemptions do not adequately consider the lead time needed for permitting electric charging infrastructure upgrades and reliability of charging systems unique to heavy duty applications.

While the provided exemptions provide an extension for fleet owners to add a ZEV to their fleet based on delivery delays and delays in construction outside of the fleet owners' control, there is no such extension to account for delays in the permitting process, which has been a regular focus of concern among stakeholders at nearly every workgroup meeting held for the proposed ACF regulation.

In the ACF workshop on March 10, 2022, a representative from the Governor's Office of Business and Economic Development (GO-Biz) stated that permit streamlining was a focus for the Governor's Office and would like a better understanding of installation and permitting timelines.[69] However, there has been no reflection of these concerns within the regulation. The exemptions, as written, only take into consideration facility-side delays in construction, which does not account for the actual timeline of installing infrastructure. Facilities must first work with utilities to have sufficient power delivered to the site, which as previously discussed can take over a year, then acquire the permits necessary to begin construction.

Stakeholders are already experiencing permitting delays of over a year, and with the influx of infrastructure upgrades and permitting requests that will be submitted to utilities and state agencies as a result of this proposed regulation, these delays will likely stretch even longer.[70] In order to qualify for the infrastructure delay exemption, a facility would need to begin development of their site at least two and a half years in advance of the regulatory deadlines (e.g., four months, if not more, for utility power distribution upgrades; and one year, if not more, to acquire the necessary permitting in order to begin construction one year in advance of the regulatory deadline and qualify for the construction delay exemption).[71] Given that requirements for the State and Local

[68] CARB. 2019. Advanced Clean Trucks Final Regulation Order. December. Available here: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/act2019/fro2.pdf. Accessed: October 2022.

[69] CARB Workshop Recording of Virtual Medium and Heavy-Duty Infrastructure Workgroup Meetings - Electricity and the Grid (Part 2). March 2022. CARB Workshop web page (https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events) includes link to recording at: https://youtu.be/uLYrDh-pKQI. Accessed: October 2022.

[70] CARB Workshop Recording of Public Workshop on Draft ACF Regulation Provisions. July 2022. CARB Workshop web page (https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events) includes link to recording at: https://youtu.be/N0cDTVp-m8Q. Accessed: October 2022.

[71] CARB Workshop Recording of ACF Virtual Medium and Heavy-Duty Infrastructure Workgroup Meetings - Electricity and the Grid (Part 2). March 2022. CARB Workshop web page (https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events) includes link to recording at: https://youtu.be/uLYrDh-pKQI. Accessed: October 2022. And CARB Workshop Recording of Public Workshop on Draft ACF Regulation Provisions. July 2022. CARB Workshop web page (https://ww2.arb.ca.gov/our-

Government Fleets regulation and the High Priority Fleets regulation begin on January 1, 2024, it may already be too late for these fleets to qualify for this exemption. CARB must take into consideration stakeholders' comments regarding the lack of certainty for permitting timelines and other delays that can occur before construction begins and expand on the list of exemptions and extensions allowed under the regulation.

A.14 CARB must update the proposed ACF rule language to clarify what fleets should do if their request for adding a vehicle configuration to the ZEV unavailability list or for an exemption is rejected.

The proposed ACF rule language does not describe the process that would occur following the rejection of an application for adding a vehicle configuration to CARB's ZEV unavailability list. We request that CARB update the rule language to state that CARB staff will respond to such a request within two weeks. We also request that the rule language be updated to state that in the event CARB staff reject the request to add a vehicle configuration to the ZEV unavailability request, they should provide an explanation for the reason for rejection as well as list of commercially available make/models of ZEV(s)/NZEV(s) for said vehicle configuration to the applicant. This would allow for fleets to understand why their request was rejected, while also providing them necessary information on commercially available vehicles that they could purchase.

The proposed rule language does not explicitly provide any pathway for appeal if CARB rejects a fleet's application for the ZEV delivery delay and/or infrastructure construction delay exemptions. CARB must update the rule language to include a clearly defined appeal process for fleet owners whose applications for such exemptions are denied.

work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events) includes link to recording at: https://youtu.be/N0cDTVp-m8Q. Accessed: October 2022.