



October 24, 2022

California Air Resource Board

**RE: Comments on the Recirculated Draft Environmental Analysis
Draft 2022 Climate Change Scoping Plan for Achieving Carbon Neutrality**

CARB's modeling scenarios and recommendations within the Recirculated Draft Environmental Analysis for the Draft 2022 Climate Change Scoping Plan for Achieving Carbon Neutrality is disrupting the proven localized organic waste Circular Economy that is cost-effective today. Instead, CARB is promoting a ZEV global linear economy supply chain that is not zero for GHG emissions but is laced with human right violations as well as environmental destruction on the first nations people land. Recirculated Draft Environmental Analysis should include the environmental and social impacts of mining for rare minerals to manufacture batteries for ZEV vehicles. The AB 32 Climate Change Scoping Plan Statutory Requirements is to Minimize Leakage and shifting ZEV batteries away from renewable natural gas will cause massive leakage on disadvantaged communities worldwide.

We ask CARB to understand and analyze the following in this Draft Environmental Analysis:

Because of CARB's proposed Advanced Clean Fleet Rule, half of the industry transitioned off diesel fuel to renewable natural gas (RNG). Because of the ZEV policies within the 2022 Scoping Plan, many in the refuse industry plan will now continue to use diesel for the next 13 to 18 years instead of the continuing the transition off diesel; even though there will be an adequate supply of in-state RNG for the entire refuse fleet in 2025 with over 100 million dge with average carbon intensity of minus 100. Continuing to implement the local Circular Economy by transitioning off diesel is not an alternative to the ZEV heavy -duty linear economy as many in the EJAC community may think, but it is the alternative to diesel use. CARB should be technology neutral on programs to phase out diesel and base their decisions on the carbon intensity of fuels and the cost-effectiveness of producing and using the fuels. CARB has a Statutory Requirements is to Minimize Leakage not to exacerbate impacts on worldwide disadvantaged communities

For those in the refuse industry that followed CARB's lead into the CNG platform decades ago to transition away from diesel, an alternative performance-based compliance standards have been proposed as part of a SB 1383 transition plan for private and public solid waste entities that produce their own in-state carbon negative RNG and fueling their fleets that utilize near-

zero NOx engines. RNG should be modeled with its life-cycle analysis of being carbon negative as verified by CARB through the LCFS program, where in the near-term GHG reduction goals can be met with the co-benefit of reducing NOx to near-zero to address the State Implementation Plan.

We ask CARB and CalRecycle to recognize the importance of RNG procurement that is used to fuel the fleets that collected the organic waste where a pipeline is not needed and is not available in many remote locations: Edgar & Associates represents both private and public fleets and private and public anaerobic digestion facilities that are fully invested in executing programs to comply with SB 1383. We ask that CARB and CalRecycle fully embrace the RNG procurement requirements for the use of biomethane in transportation fuels and inform CARB of their RNG procurement requirements in their modeling scenario proposed in the Scoping Plan Update and recognize this in the Draft Environmental Analysis.



Biomethane is also used to generate power and heat for on-site use at our wastewater, landfills, recycling facilities, and composting facilities. In so many cases there is no reason to inject biomethane into a PUC-regulated pipeline as many wastewater facilities and landfill locations are remote from pipeline interconnection opportunities. A community-scale operation implementing Circular Economy programs does not, and in many cases cannot, inject into a PUC pipeline. The use of biomethane injected into a pipeline for other off-site industrial uses is a fallacy for those community scale project that have on-site demand. For these reasons, requiring biomethane to be conveyed off-site from wastewater plants and recycling facilities will be disrupting the local Circular Economy.

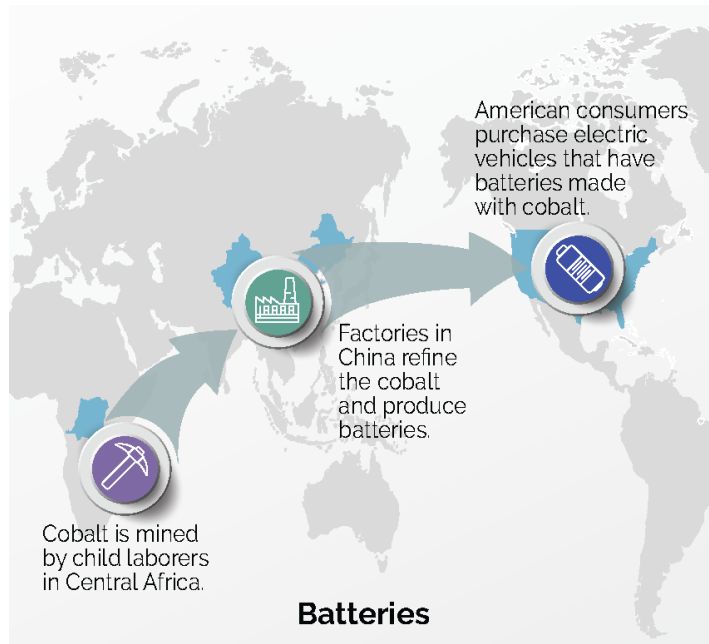
We ask Cal-EPA to coordinate with CalRecycle’s mandates to implement SB 1383 with RNG procurement requirements and CARB’s proposed ZEV linear economy. CARB’s zeal in picking future technology winners while overlooking today’s cost-effective, carbon-negative, near-zero NOX programs needs to be rectified by Cal-EPA. Cal-EPA, CARB, and CalRecycle should be promoting and incentivizing the local Circular Economy to achieve real reductions in GHGs and NOx in the near-term and not wait for decades to achieve less reductions in 2045 with the ZEV linear economy. The ZEV linear economy is not disclosed or discussed in the Scoping Plan Update where GHG leakage is being encouraged and where harm is being exacerbated disproportionately on low socio-economic status communities around the world.

ZEVs are not Zero Emissions but have a Carbon Intensity of 62 to 90 (gCO₂e/MJ)

ZEVs are not zero greenhouse gas emission vehicles but have a carbon intensity of **62 to 90 (gCO₂e/MJ)** on a life-cycle basis when combining the electrical energy required to charge the battery and the manufacturing process of the battery. CARB’s existing emissions factor to produce the electricity to charge the battery is **24.39 (gCO₂e/MJ)**. The range of emissions from the battery manufacturing alone based upon European Studies, have a carbon intensity of **38.13 – 66.26 (gCO₂e/MJ)** depending on the type of ZEV battery. **Meanwhile, CARB modeling keeps diesel viable for decades and phases out carbon- negative RNG for transportation.**

AB 32 Climate Change Scoping Plan Statutory Requirements is to Minimize Leakage

ZEV batteries that are manufactured out of state are increasing non-Californian emissions in other countries in the amount of **38.13 – 66.26 (gCO₂e/MJ)** depending on the type of ZEV battery. CARB is picking ZEV as the “future technology” while leaking GHG emission out of state. The U.S. Department of Labor published this graphic showing the ZEV linear economy from the Congo to China to California.



AB 32 Climate Change Scoping Plan Statutory Requirements is that CARB Should Not Exacerbate Harm Disproportionately to Low Socio-economic Communities

The Environmental Justice Advisory Committee has been briefed on this topic at seven public meetings backed up with dozens of credible references. Cobalt is being mined by forced child labor in the Democratic Republic of the Congo where Amnesty International has documented serious human rights violations linked to the extraction of the minerals used in lithium-ion batteries. Think about the environmental degradation the ZEV battery imposes on the environment, outside of California on the people of Africa, China, South America, and first

nations people of Canada. Think about the extraordinary volume of water and resources used to mine rare minerals for the ZEV battery.

The Scoping Plan Should Maximize Near-Term Emissions Reductions in the Transportation Sector.

We support CARB's work to move to the cleanest possible vehicles to reduce climate and air pollution. Many of our clients are developing projects to convert organic waste to hydrogen and electricity to power ZEV's. At the same time, there is no commercially viable ZEV in the Class 7 and 8 truck markets. It is not at all clear when a Class 7 or 8 ZEV will be commercially available, not to mention reliable, affordable, and sufficient to meet the needs of long-haul trucks, waste haulers, and others.

The Draft Scoping Plan highlights the need to eliminate diesel,¹ but fails to offer near-term solutions to get heavy-duty, long-haul diesel trucks off the road as soon as possible. By limiting the proposed strategies to ZEVs only, the Draft Scoping Plan is missing the single biggest opportunity to reduce black carbon, PM, NOx, and other pollutants from diesel trucks - which are the biggest source of air pollution in the San Joaquin Valley and South Coast Air Districts, the two most polluted air districts in the country.

In other sectors and in general, the Draft Scoping Plan highlights the need to keep all options on the table to meet the state's climate goals, but then contradicts that guidance in the transportation sector by focusing the proposed strategies entirely on ZEVs. This is surprising since the Draft Plan acknowledges that:

“In addition to building the production and distribution infrastructure for zero-carbon fuels, the state must continue to support low-carbon liquid fuels during this period of transition and for much harder sectors for ZEV technology such as aviation, locomotives, and marine applications. Biomethane currently displaces fossil fuels in transportation and will largely be needed for hard-to-decarbonize sectors but will likely continue to play a targeted role in some fleets while the transportation sector transitions to ZEVs.”²

Given the recognition that biomethane will continue to play a role in transportation and other hard-to-electrify sectors, we urge CARB to include recommended strategies to continue to increase the use of biomethane to replace fossil fuels in heavy duty trucks and other transportation sectors. Those recommendations should include:

- Maintaining a technology neutral, lifecycle carbon intensity based LCFS program.
- Increasing the carbon reductions required by the LCFS between now and 2030.
- Continuing to incentivize near-zero emission vehicles in vehicle classes where there is no commercially viable ZEV option.

¹ Draft Scoping Plan at pages 147-148.

² Id. at page 152.

- Developing a clear transition strategy for biomethane producers that maintains a viable market for biomethane and biogas from organic waste as vehicles transition to zero-emission technologies.

The following comments are filed in the past and will then focus on pages within the Draft Environmental Analysis:

- CARB has a statutory requirement to minimize leakage when considering the AB 32 Climate Change Scoping Plan Update and needs to address the carbon intensity of ZEV linear supply chain battery manufacturing.
- CARB has a statutory requirement to support cost-effective and flexible compliance when considering the AB 32 Climate Change Scoping Plan Update, where heavy-duty ZEV provides neither.
- CARB should include ZEV Battery Manufacturing Emissions into the LCFS since the core tenets of the LCFS are based on life-cycle analysis.
- When modeling for Transportation Demand for ZEVs and Energy Demand by Fuel Type, the carbon intensity of the ZEV batteries should be based on an honest life-cycle analysis referencing the European Studies.

There is no time to waste for a “perfect ZEV tomorrow” in 2045 that may be carbon neutral where there are proven carbon negative programs today that can bend the climate curve by effectively mitigating methane and continuing the Circular Economy, and not disrupt the progress being made.

With the overarching comments above, we filed the specific comments per page:

Page 22: Low Carbon Fuel Actions

ZEV batteries need to be charged and manufactured as other low carbon fuels. ZEV batteries need to have their true-life cycle analysis provided in this. As stated on page 24, *“To conservatively disclose the range of potential environmental impacts, the compliance responses below assume all outcomes and potential actions reflected in the Scoping Plan are fully realized.”* The potential environmental impacts of ZEV battery production needs to be included in the Environmental Analysis.

Page 24: Expanded Use of Zero-Emissions Mobile Source Technology Actions

This narrative below in italics directly from page 24-25 is disingenuous for failing to account for ZEV battery mining impacts, as those impacts are happening now and will only be exacerbated.

AB 32 Climate Change Scoping Plan Statutory Requirements is that CARB Should Not Exacerbate Harm Disproportionately to Low Socio-economic Communities

“Reasonably foreseeable compliance responses associated with the expanded use of zero-emission mobile source technology could include increased infrastructure for hydrogen refueling and electric recharging stations; increased demand for battery manufacturing and associated increases in mining and exports; increased recycling or refurbishment of batteries; reduced extraction, refinement, and distribution of oil and gas products; increased solid waste disposal or recycling from the scrapping of old equipment; the construction and operation of new manufacturing facilities to support zero-emission technologies; and the construction and operation of new power plants, solar fields, wind turbines, and other electricity generation facilities to accommodate increased electrical demand associated with the deployment of zero-emission technologies. These compliance responses include the potential for increased mining of various metals and other natural resources that are needed in zero-emission battery technology. Common metals used in electric vehicle batteries include, but are not limited to, lithium, graphite, cobalt, nickel, copper, manganese, chromium, zinc, and aluminum. Additionally, the production of hydrogen fuel cells commonly requires the use of platinum. CARB does not intend to limit the types of batteries that may be used to comply with zero-emission vehicle requirements under the 2022 Scoping Plan and recognizes that future zero-emission technologies may be developed that use other minerals, metals, or resources.”

This Recirculated Draft EA does not attempt to capture the potential effects of mining the gamut of existing and potential battery materials because it would be speculative to attempt to predict the specific methods, locations, and extent of mining conducted to extract these minerals, metals, and resources in the future. Adding to the speculative nature of such an undertaking, battery technology continues to evolve, and it is not possible to predict new technological breakthroughs or the likely uptake for a given technology. Nevertheless, this Recirculated Draft EA makes a good-faith effort to disclose potentially adverse environmental effects of increased mining activity. Notably, of the aforementioned metals (i.e., lithium, graphite, cobalt, nickel, copper, manganese, chromium, zinc, aluminum, and platinum), lithium is often mined using brine mining (i.e., pumping and processing of brine water), whereas the other metals are harvested using surface open pit or underground extraction of ores followed by a variety of processing techniques. Where appropriate, the environmental impacts associated with brine, open pit, and underground mining are disclosed, which is intended to reasonably describe the types of impacts associated with the increased mining of these metals”.

CARB and Environmental Justice Advisory Committee has been briefed on this topic at seven public meetings backed up with dozens of credible references. The reference documents are listed below in the Annotated Bibliography. The current impacts are happening now, and it is not speculative to discount human rights and environmental damages.

Andersen-Rodgers, D., & Crawford, K. F. (2018). *Human Security Theory and Action*. Rowman & Littlefield.

Congo Leader Wants Rival's Troops Moved. (2006, Nov 23). *New York Times* (1923) <http://proxy.lib.csus.edu/login?url=https://www.proquest-com.proxy.lib.csus.edu/historical-newspapers/congo-leader-wants-rivals-troops-moved/docview/93138208/se-2?accountid=10358>

Crossette, B. (2000, Feb 13). Africans Want U.N. to Play A Stronger Role in Congo. *New York Times* (1923-) <http://proxy.lib.csus.edu/login?url=https://www.proquest.com/historical-newspapers/africans-want-u-n-play-stronger-role-congo/docview/91516335/se-2?accountid=10358>

Democratic Republic of the Congo: Opinion: Another cold case in the Democratic Republic of

- Congo? (2021, Feb 26). *Asia News Monitor* <http://proxy.lib.csus.edu/login?url=https://www.proquest.com/newspapers/democratic-republic-congo-opinion-another-cold/docview/2492983178/se-2?accountid=10358>
- Deputy High Commissioner for Human Rights to the Human Rights Council: Transitional Justice Is Key to Unblocking the Vicious Circle of Violence That Persists in the Democratic Republic of the Congo. (2021, Oct 06). *Targeted News Service* <http://proxy.lib.csus.edu/login?url=https://www.proquest.com/wire-feeds/deputy-high-commissioner-human-rights-council/docview/2579391466/se-2?accountid=10358>
- Gambino, A. W. (2009). State Failure: The Responsibility to Protect Civilians in the Democratic Republic of the Congo. *Georgetown Journal of International Affairs*, 10(2), 51–58. <http://www.jstor.org/stable/43133573>
- OCHA Services. (2001, May). *Lusaka Ceasefire Agreement to be reviewed - democratic republic of the Congo*. ReliefWeb. Retrieved March 25, 2022, from <https://reliefweb.int/report/democratic-republic-congo/lusaka-ceasefire-agreement-be-reviewed>
- Peterman, A., PhD., Palermo, T., PhD., & Bredenkamp, C., PhD. (2011). Estimates and Determinants of Sexual Violence Against Women in the Democratic Republic of Congo. *American Journal of Public Health*, 101(6), 1060-7. <http://proxy.lib.csus.edu/login?url=https://www.proquest.com/scholarly-journals/estimates-determinants-sexual-violence-against/docview/867826010/se-2>
- Secretary-General's remarks on the attack on peacekeepers in the Democratic Republic of the Congo. (2017, Dec 08). *M2 Presswire* <http://proxy.lib.csus.edu/login?url=https://www-proquest-com.proxy.lib.csus.edu/wire-feeds/secretary-general-s-remarks-on-attack/docview/1974024958/se-2?accountid=10358>
- Trotsky, L. (1936). *I. the program of the International Revolution or a program of socialism in one country?* Leon Trotsky: The Third International After Lenin (Section 1-1). Retrieved March 2022, from <https://www.marxists.org/archive/trotsky/1928/3rd/ti01.htm>
- Tsabora, J. (2014). Fighting the “resource wars” in the Democratic Republic of the Congo: an exploratory diagnosis of the legal and institutional problems. *The Comparative and International Law Journal of Southern Africa*, 47(1), 109–128. <http://www.jstor.org/stable/24585819>
- Wakabi, W. (2008). Sexual violence increasing in Democratic Republic of Congo. *The Lancet*, 371(9606), 15-6. [http://dx.doi.org/10.1016/S0140-6736\(08\)60051-3](http://dx.doi.org/10.1016/S0140-6736(08)60051-3)
- Young, H. (2017, September 12). *Intrastate conflicts: Refocus on the intractable*. MPSA Blog. Retrieved March 2022, from <https://blog.mpsanet.org/2017/09/12/intrastate-conflicts-refocus-on-the-intractable/>

Cobalt is being mined by forced child labor in the Democratic Republic of the Congo where Amnesty International has documented serious human rights violations linked to the extraction of the minerals used in lithium-ion batteries. Think about the environmental degradation the ZEV battery imposes on the environment, outside of California on the people of Africa, China, South America, and first nations people of Canada. Think about the extraordinary volume of water and resources used to mine rare minerals for the ZEV battery.

Page 24: Expanded Use of Zero-Emissions Mobile Source Technology Actions – Battery Recycling

Is CARB requiring ZEV battery end-of-life recycling in the Scoping Plan, as on page 24 the following is stated:

“...increased recycling or refurbishment of batteries”

The Cal-EPA final report dated March 2022 from the Lithium-Ion Car Battery Recycling Advisory Group was mandated by AB 2832 (Dahle). This report documents over two years of work of 19 experts who volunteered their time to address this important issue supported by academic research from University of California, Davis. The Environmental Analysis should recognize the policy recommendations and require end-of-life recycling to minimize mining impacts. Without any of those end-of-life recycling policies adopted, the Environmental Analysis would have to assume virgin mining and the impacts that are happening today. As noted in this EA, the Scoping Plan is a policy document, and the following policies from the Cal-EPA Report needs to be added to the policy document.

“The state of California has long been a leader in policies that support electric vehicle (EV) adoption, and their success has made California home to 42% of the nation’s EV fleet (U.S. Department of Energy, 2021a). EVs are powered by lithium-ion traction batteries. As EVs retire from service, a flow of end-of-life (EOL) lithium-ion batteries (LIBs) will be generated. These LIBs can be resold as-is, remanufactured, repurposed, recycled, or discarded in a hazardous waste landfill. In 2018, California Assembly Bill 2832 (AB2832) required the convening of the Lithium-Ion Battery Recycling Advisory Group whose mandate includes submission of policy recommendations to the Legislature to ensure “...that as close to 100% as possible of lithium-ion batteries in the state are reused or recycled at end-of-life”(Dahle, 2018).

Policy proposals that define EOL management responsibility

Two policy proposals that define EOL management responsibility rose to the level of majority support: core exchange with a vehicle backstop, and producer take-back. These policies complement, and do not replace, current warranty regulations and programs that require the vehicle manufacturer to properly reuse, repurpose, or recycle a removed EOL battery that is still under warranty.

The core exchange and vehicle backstop policy garnered the most support from the Advisory Group at 93% of voting members. It builds on existing industry standards and policies for other vehicle components, specifically a core exchange and product take-back. This policy defines responsibility for out-of-warranty batteries under three possible circumstances:

- 1. For EVs still in service, if a battery pack, module, or cell is replaced before the vehicle reaches EOL, a core exchange program detailed by the EV battery supplier shall be used for the replacement battery (or any module or cell). The entity removing the battery shall be responsible for ensuring the used battery (or module or cell) is properly reused, repurposed, or recycled. The entity selling an EV battery shall use a core exchange program to track that the used battery has been properly managed.*

2. For EVs reaching EOL, a dismantler who takes ownership of an EOL vehicle is responsible for ensuring the battery is properly reused repurposed, refurbished, or recycled. If an EV battery is directly reused in another vehicle with no alterations, the process for EVs still in service shall apply. If the battery is refurbished or repurposed, the responsibility transfers to the refurbished or repurposer.

3. For EVs reaching EOL where an EOL EV with an OEM-certified battery is not acquired and removed by a licensed dismantler, the vehicle manufacturer shall be responsible for ensuring that the vehicle is properly dismantled and the battery is properly reused, refurbished, or recycled

Page 99 – Biological Resources – Low Carbon Fuels

Page 131- Geology and Soils

Page 174 – Hydrology and Water Quality

The land use impacts of mining rare minerals for ZEV batteries as a low carbon fuel needs to be assessed using the GTAP model. CARB uses GTAP for other low carbon fuel impacts and assess the life cycle impacts such as for the LCFS. There is a land use change (LUC) for mining and that needs to be included in this Environmental Assessment for both Biological Resources and Geology and Soils.

Mining can cause a wide range of adverse land use impacts during mining operation and after closure, e.g. **fragmenting the landscape and polluting soils and water with effects on human settlements, agriculture plantations, and natural ecosystems.**

“CARB estimates the indirect land use change effects of biofuel crop production using the Global Trade Analysis Project (GTAP) model, which is a computer model developed and supported by researchers at Purdue University. Within the GTAP’s scope, there are 111 world regions, some of which consist of single countries, others of which are composed of multiple neighboring countries. For each region, data tables describe every national economy in that region, as well as all substantial intra- and inter-regional trade relationships. The data for this model are contributed and maintained by more than 6,000 local experts. GTAP model analysis considers life cycle CI impacts related to potential or actual deforestation and conversion of other land use types. When a life cycle pathway is developed for a crop-based biofuel, a land use change (LUC) value is developed using the GTAP model for land that would be converted to agricultural production because of increased demand for that crop. The approach accounts for land conversions in all regions of the world based on available land and likelihood of land to be converted as demand for land goes up. The methodology attributes new land to come from forest lands, pastureland, and cropland. A fuel that is more likely to displace sensitive lands, such as forests, would have a higher LUC value, making it less attractive for use in complying with the LCFS regulation. However, while the models consider effects related to land use changes, they do not explicitly prohibit adverse effects on habitat or biodiversity, and there could still be substantial environmental impacts on biological resources.”

Evidence of the impacts of metal mining and the effectiveness of mining mitigation measures on social–ecological systems. A systematic protocol is copied below and need to be included in this Environmental Assessment.

Background

On the impacts of mining

Mining activities, including prospecting, exploration, construction, operation, maintenance, expansion, abandonment, decommissioning and repurposing of a mine can impact social and environmental systems in a range of positive and negative, and direct and indirect ways. Mine exploration, construction, operation, and maintenance may result in land-use change, and may have associated negative impacts on environments, including deforestation, erosion, contamination and alteration of soil profiles, contamination of local streams and wetlands, and an increase in noise level, dust and emissions (e.g. [1,2,3,4,5]). Mine abandonment, decommissioning and repurposing may also result in similar significant environmental impacts, such as soil and water contamination [6,7,8]. Beyond the mines themselves, infrastructure built to support mining activities, such as roads, ports, railway tracks, and power lines, can affect migratory routes of animals and increase habitat fragmentation [9, 10].

Mining can also have positive and negative impacts on humans and societies. Negative impacts include those on human health (e.g. [11]) and living standards [12], for example. Mining is also known to affect traditional practices of Indigenous peoples living in nearby communities [13], and conflicts in land use are also often present, as are other social impacts including those related to public health and human wellbeing (e.g. [14,15,16,17]). In terms of positive impacts, mining is often a source of local employment and may contribute to local and regional economies [18, 19]. Remediation of the potential environmental impacts, for example through water treatment and ecological restoration, can have positive net effects on environmental systems [20]. Mine abandonment, decommissioning and repurposing can also have both positive and negative social impacts. Examples of negative impacts include loss of jobs and local identities [21], while positive impact can include opportunities for new economic activities [22], e.g. in the repurposing of mines to become tourist attractions.

Mitigation measures

‘Mitigation measures’ (as described in the impact assessment literature) are implemented to avoid, eliminate, reduce, control or compensate for negative impacts and ameliorate impacted systems [23]. Such measures must be considered and outlined in environmental and social impact assessments (EIAs and SIAs) that are conducted prior to major activities such as resource extraction [24, 25]. Mitigation of negative environmental impacts in one system (e.g. water or soil) can influence other systems such as wellbeing of local communities and biodiversity in a positive or negative manner [23]. A wide range of technological engineering solutions have been implemented to treat contaminated waters (e.g. constructed wetlands [26], reactive barriers treating groundwater [27], conventional wastewater treatment plants). Phytoremediation of contaminated land is also an area of active research [28].

Mitigation measures designed to alleviate the negative impacts of mining on social and environmental systems may not always be effective, particularly in the long-term and

across systems, e.g. a mitigation designed to affect an environmental change may have knock on changes in a social system. Indeed, the measures may have unintentional adverse impacts on environments and societies. To date, little research appears to have been conducted into mitigation measure effectiveness, and we were unable to find any synthesis or overview of the systems-level effectiveness of metal mining mitigation measures.”

Page 101 – Biological Resources – Expanded Use of ZEVs

Mining can cause a wide range of adverse land use impacts during mining operation and after closure, e.g. **fragmenting the landscape and polluting soils and water with effects on human settlements, agriculture plantations, and natural ecosystems**. This Environmental Analysis needs to include those for mining the world to produce ZEV batteries.

From the EA:

- Expanded Use of Zero-Emission Mobile Source Technology Actions
 - o *“Anticipated operation-related impacts on biological resources from the reasonably foreseeable compliance responses listed above would likely occur primarily from operation of new facilities and increased mining activity associated with increased demand for lithium-ion and nickel-metal hydride (NiMH) batteries. Long-term operation of manufacturing facilities, production facilities, recycling facilities, emission testing facilities, power plants, solar fields, wind turbines, and other electricity generation facilities would often include the presence of workers; movement of automobiles, trucks, and heavy-duty equipment; and operation of stationary equipment.”*
 - o P. 102 Also says that “operation of a new facility could drive wildlife from the surrounding habitat or could impede wildlife movement through the area”...
 - o Does not talk about the biological impacts to the disadvantaged communities in the surrounding communities or the people who would be doing the increased mining

Page 149 – Hazards and Hazardous Materials – Expanded Use of ZEVs

- Comment about how lithium metal batteries contain potentially toxic metals... does not mention the impacts to the disadvantaged communities in South America.

Page 174 – Hydrology and Water Quality

- *“increased infrastructure for hydrogen refueling and electric recharging stations; increased demand for battery manufacturing and associated increases in mining and exports; increased recycling or refurbishment of batteries; reduced extraction, refinement, and distribution of oil and gas products; increased solid waste disposal or*

recycling from the scrapping of old equipment; the construction and operation of new manufacturing facilities to support zero-emission technologies; and the construction and operation of new power plants, solar fields, wind turbines, and other electricity generation facilities to accommodate increased electrical demand associated with the deployment of zero-emission technologies.”

- P. 174 says the production of mining for ZEV batteries could result in over drafting of groundwater, as well as contamination from metals and has domestic mitigation to comply with the Clean Water Act. Where is the mitigation for the massive mining operations overseas in disadvantaged communities.

Page 197 to 223 – Mineral Resources

AB 32 Climate Change Scoping Plan Statutory Requirements is to Minimize Leakage

AB 32 Climate Change Scoping Plan Statutory Requirements is that CARB Should Not Exacerbate Harm Disproportionately to Low Socio-economic Communities

This Environmental Assessment does not assess the impacts of mining lithium, graphite, cobalt, nickel, copper, platinum and palladium overseas where the GHG emissions are leaked upon the manufacturing and mining counties, and where harm is exacerbated on disadvantaged communities. From page 197 below:

“Implementation of the 2022 Scoping Plan could have an effect on the availability of known materials because it would involve mining lithium. Owing to continued exploration, identified lithium resources have increased substantially worldwide and total about 86 million tons. In 2021, the total amount of lithium ore available in the United States was 7.9 million tons in the form of continental brines, geothermal brines, hectorite, oilfield brines, and pegmatites. Lithium consumption for batteries has increased substantially in recent years because of increased demand for rechargeable lithium-ion batteries, which use approximately 71 percent of the world’s lithium resources. As of January 2022, a domestic lithium mine is in operation in Nevada, and the developer, Controlled Thermal Resources, has begun extracting lithium in the Salton Sea. Two companies produced a large array of downstream lithium compounds in the United States from domestic or South American lithium carbonate, lithium chloride, and lithium hydroxide. From 2016 through 2019, the United States imported lithium from Argentina (55 percent), Chile (36 percent), China (5 percent), Russia (2 percent), and others (2 percent) (Jaskula 2022). However, there are current initiatives at the State and federal level that are likely to influence lithium mining domestically, which include efforts in California. Table 4-17 details lithium mine production and reserves by country.”

There should be mitigation measures for biological, soils and geology, and hydrology and water resources for mineral resources, and there are not.

Global warming is dangerously close to spiraling out of control with extreme weather and forest fires. The United Nations' Intergovernmental Panel on Climate Change warned that the world is already certain to face further climate disruptions for decades to come and that humans are "unequivocally" to blame. Rapid action to cut greenhouse gas emissions could limit some impacts, where the focus should be on reducing short-lived climate pollutants, such as methane and black carbon. In order to bend the climate curve to delay further catastrophic events, methane needs to be reduced over the next 8 years. If not, deadly heat waves, gargantuan hurricanes and huge floods, which are already happening, will only become more severe.

With the stakes so high, why is the California Air Resources Board (CARB) still promoting heavy-duty zero emission vehicles (ZEV) without conditions of sourcing, lifecycle analysis, and end-of-life recycling? Kicking the can to 2045 for a carbon neutral future is not the answer, which may not exist the way we may hope. Digging up rare earth minerals to manufacture ZEV batteries assumes we can mine our way out of this to combat climate change. As Disco Inferno states, we will 'burn, baby, burn'; we have already 'drilled, baby, drilled', and now we plan to 'mine, baby, mine' with child slave labor? Instead, the urban, forest, and agricultural biomass should be used to produce biofuels to transport the world into a greener future.

The Governor is budgeting \$15 billion in climate resiliency with some valid programs. The Cap-and-Trade program is generating over \$1 billion per quarter with carbon pricing increasing for \$12/ton to \$30/ton. Cap-and-Trade has funded 28 compost and anaerobic digestion facilities investing \$54 million at a cost of just \$53/ton for each ton of GHG reduced, since these projects avoid methane generation at landfills and build upon existing programs and truly implement an organic circular economy. Another \$70 million is on the way this year at such a critical time. The Healthy Soils Program with compost and biochar use have 466 projects investing \$33.6 million at a cost of \$177/ton with another \$75 million budgeted this year. Expanding these value programs provides 'bang for the buck' on mitigating methane and sequestering carbon into our working lands. Meanwhile, ZEV deployment is costing \$778 to \$3,000 per ton to displace diesel, and if true lifecycle carbon accounting was performed, there would be minimal GHG reduced since ZEV charging and battery manufacturing is comparable to CNG vehicles in their GHG emissions.

CARB will be adopting the Advanced Clean Fleet Rule this month to accelerate heavy-duty ZEV deployment much sooner than technically or economically feasible with overarching issues such as grid reliability, duty cycle, and charging infrastructure not being addressed. CARB is promoting a linear global economy that will mine disadvantaged communities in the Congo, South America, and Canada, and disrupt the carbon-negative circular economy that is bio-based with local resources not needing to import raw materials or export waste. CARB is rolling the dice on ZEVs, where the trucks will not PASS GO when the grid is down and will have no place to electrify until billions more fund the charging infrastructure. CARB is promoting a ZEV strategy without conditions and will be on the wrong side of history as this Environmental Assessment is lacking on allowing GHG leakage and exacerbating harm on global disadvantaged communities.

Sincerely,

A handwritten signature in black ink, appearing to read "Evan WR Edgar". The signature is written in a cursive, somewhat stylized font.

Evan WR Edgar
Regulatory Affairs Engineer