



September 1, 2022

**Liane M. Randolph, Chair**  
**California Air Resource Board**

**Shereen D'Souza, Deputy Secretary Cal-EPA**  
**Climate Policy and Intergovernmental Relations**

**Martha Dina-Arguello, Co-Chair**  
**Sharifa Taylor, Co-Chair**  
**Dr. Catherine Garoupa White, Co-Chair**  
**Environmental Justice Committee Members**

**RE: Discussion of Environmental Justice Advisory Committee Recommendations and  
Developing the Final 2022 Scoping Plan – Support for the ZEV Battery Directive**

Dear Ms. Randolph, Ms. D'Souza, Ms. Dina-Arguello, Ms. Taylor, and Ms. White:

The cornerstone of California Air Resources Board (CARB)'s policies and regulations and the Governor's Budget is to accelerate the transition from petroleum products to zero-emission vehicles (ZEVs). With this massive billion investment in ZEVs, there should be support for a ZEV Battery Directive following the European Union (EU) Battery Directive that was adopted in March 2022.

The EU Batteries Directive, which is part of the European Green Deal, and the new Circular Economy Action Plan, adopted new regulations setting sustainability requirements for batteries to be placed on the EU market, including responsible sourcing of raw materials, hazardous substances, carbon footprint, mandatory level of recycled content and durability, reusability and recyclability conditions; establishing objectives and measures to improve the collection, treatment, and recycling of waste batteries and ensure materials recovery, establishing information and labelling requirements for both economic operators and end-users, modifying requirements for the implementation of extended producer responsibilities (EPR) obligations. The Directive major objectives are to strengthen the functioning of the internal market (including products, processes, waste batteries and recyclates), by ensuring a level playing field through a common set of rules; promoting a circular economy; and reducing environmental and social impacts throughout all stages of the battery life cycle.

ZEV Battery Directive would have three major components following the EU Battery Directive:

1. **A Carbon Footprint Declaration With A Lifecycle Analysis With An Independent Third-Party Verification Statement**
2. **Sourcing And Supply Chain Due Diligence**
3. **End-Of-Life Recycling**

With regards to the Environmental Justice Advisory Committee Recommendations and Developing the Final 2022 Scoping Plan, we have the following comments to support the proposed ZEV Battery Directive:

1. **A Carbon Footprint Declaration With A Lifecycle Analysis With An Independent Third-Party Verification Statement**

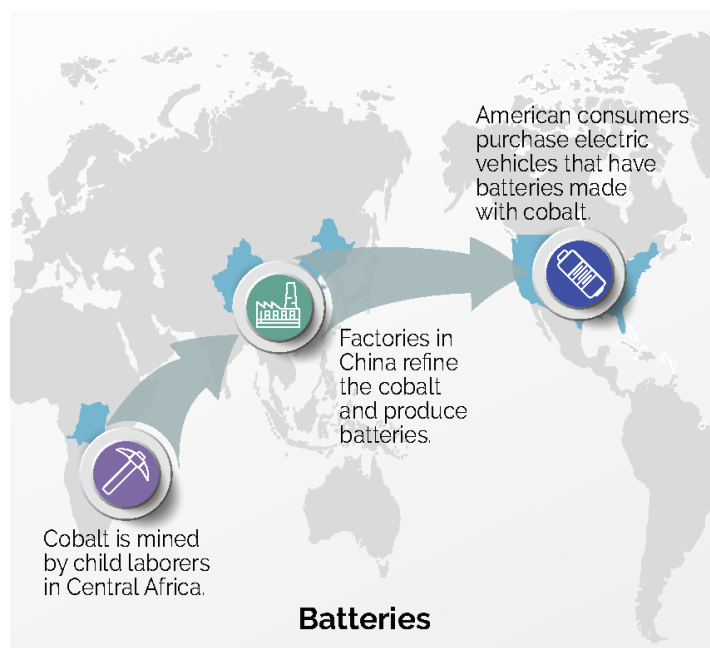
EJAC is recommending NF5 for Electric Vehicles where a full life cycle assessment of ZEV batteries.

**ZEVs are not Zero Emissions but have a Carbon Intensity of 62 to 90 (gCO<sub>2e</sub>/MJ)**

ZEVs are not zero greenhouse gas emission vehicles and have a carbon intensity of **62 to 90 (gCO<sub>2e</sub>/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 (gCO<sub>2e</sub>/MJ)**. The range of emissions from the battery manufacturing alone based upon European Studies, have a carbon intensity of **38.13 – 66.26 (gCO<sub>2e</sub>/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 (gCO<sub>2e</sub>/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 the United States.



## **2. Sourcing And Supply Chain Due Diligence**

EJAC has been briefed on this topic at seven public meetings backed up with dozens of credible references' EJAC does not have a policy recommendation on this and neither does CARB staff.

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

Cobalt is being mined by forced child labor in the Democratic Republic of the Congo where Amnesty International and dozens of credible organizations have documented serious human rights violations and environmental damage linked to the extraction of the minerals used in lithium-ion batteries.

The Lithium-ion Car Battery Recycling Advisory Group Final Report released by Cal-EPA on March 16, 2022 mandated by AB 2832 published the following information on page 13-14:

#### **1.4.1 Cobalt**

Nearly 70% of cobalt is produced in the Democratic Republic of Congo (U.S. Geological Survey, 2021b) through both industrial mining, which is primarily mechanized, and small scale or artisanal mining, which is practiced manually using simple tools (Sovacool, 2019). An estimated 15-30% of the country's cobalt output is generated through artisanal mining, where adults and an estimated 40,000 children work up to 12-hour days in abusive work environments, exposed to hazardous conditions (Baumann- Pauly, 2020). Artisanal miners have little to no protective gear or tools, nor safety measures at mining sites, all while earning less than \$2 per day. A multitude of battery-using companies, from Apple to Tesla, as well as international mining companies, have engaged in programs to either assist local communities to improve economic and educational conditions or to formalize artisanal and small-scale mining enterprises in an attempt to create conditions where mine safety and child labor standards can be improved (Amnesty International and Afrewatch, 2016).

#### **1.4.2 Nickel**

Indonesia is the largest producer of nickel where strip mining for nickel leads to deforestation of tropical rainforests that are home to native people, act as crucial carbon sinks, and provide habitat for endangered species (Abood et al., 2015; Supriatna et al., 2020; U.S. Geological Survey, 2021b). After strip mining, the soil is depleted of nutrients, posing a significant challenge to rehabilitation efforts (Van der Ent et al., 2013).

Where is the environmental justice for all?

## **3. End-Of-Life Recycling**

**AB 2832 (Dahle, 2018) created the Lithium-Ion Car Battery Recycling Advisory Group to review, and advise the Legislature on, policies pertaining to the recovery and recycling of lithium-ion batteries sold with motor vehicles in the state and to submit policy**

**recommendations to the Legislature aimed at ensuring that as close to 100% as possible of lithium-ion batteries in the state are reused or recycled at end-of-life in a safe and cost-effective manner.**

The Lithium-ion Car Battery Recycling Advisory Group has concluded its work for which it was established and completed its final policy recommendations to the Legislature in its Lithium-ion Car Battery Recycling Advisory Group Final Report. The final policy recommendations posted on May 9, 2022, have been sent to the Legislature as required by AB 2832. These recommendations should be part of CARB's regulatory process regarding ZEV deployment.

Plus, the components of the European Battery Directive need to be incorporated into all ZEV policies and regulations.

#### **Extended Producer Responsibility**

- Producer of batteries shall have EPR for batteries made available to the market to ensure the attainment of waste management obligations

#### **End-of-Life Information**

- EPR organizations need to present information on end-of-life programs

In summary, the following comments are filed:

- CARB needs to support a ZEV Battery Directive following the EU adopted regulations when considering any regulations deployment ZEV technology.
- CARB has a statutory requirement to minimize emissions 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 should require a ZEV Battery Manufacturing full lifecycle analysis which was also supported by EJAC recommendation NF5.
- 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.

Sincerely,



Evan WR Edgar  
Regulatory Affairs Engineer