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IEPR Commissioner Workshop on Zero Emission Vehicle Resilience and Three Revolutions in Transportation

Additional submitted attachment is included below.

SIERRA CLUB CALIFORNIA

August 6, 2020

The Honorable Patricia Monahan
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Docket No. 20-IEPR-02

RE: Integrated Energy Policy Report Commissioner Workshop on Zero Emission Vehicle Resilience and Three Revolutions in Transportation

Dear Commissioner Monahan:

Sierra Club California appreciates the opportunity to comment on the California Energy Commission (CEC) Integrated Energy Policy Report (IEPR) 2020 update. Specifically, these comments are regarding the June 15 - 16, 2020 workshops on Zero Emission Vehicle Resilience and Three Revolutions in Transportation. These sessions show how a robust zero-emission vehicle (ZEV) fleet can help California create a cleaner and more resilient grid and transportation system.

The transportation sector emits 40 percent of California's total greenhouse gas emissions and mobile sources emit 80 percent of smog-forming NOx emissions. Combating these emissions will require phasing out fossil-fuel-powered cars and adopting zero-emission vehicles.

If adopted strategically with a focus on shared mobility and automation, ZEVs in the light-, medium- and heavy-duty sectors could create revolutionary change in our transportation system. They will not only reduce climate pollution, they will also create more resilient communities.

I. Directionality is a Spectrum

Presenters from Honda, Toyota, Next Dimension and Twin Rivers School District touted the benefits of bidirectional power flow in electric vehicles. It is important to note that the benefits of clean, bidirectional power are unique to battery electric vehicles (BEVs). This is an important reason why California must swiftly transition to BEVs.

Bidirectional power can provide backup power during public safety power shut offs and thereby eliminate the need for dirty diesel or methane generators. Further, large fleets of heavy-duty

electric vehicles can reduce the need for fossil fuel energy generation by providing reliable and predictable power when the sun is not shining or the wind is not blowing.

The Commission should continue to support mass adoption of battery electric vehicles while thinking creatively about the potential of bidirectional power.

II. AVs Must be EVs

Autonomous vehicles (AVs) present an exciting opportunity to reduce congestion, vehicle miles traveled (VMT) and pollution. If carefully implemented and widely adopted, AVs could be an integral part of an urban, electric transportation system that would reduce urban transportation emissions by 80% by 2050[1]. This scenario assumes a fully electrified and optimally shared fleet of AVs in urban areas.

However, there is another, less ideal route that AVs could take that is referred to as the "hell scenario". If AVs were predominantly internal combustion engines and owned by individuals, their mass implementation would increase pollution and congestion.

AV's are being developed presently. As encouraging as this is, California must step in and mandate that all AVs be fully electric. Additionally, AVs must be carefully implemented to maximize ride sharing, minimize VMT and serve underserved communities that are typically left out of the early transition to clean technologies.

III. Batteries Reincarnated

The drivable life of electric vehicle batteries ends with about 80% of original capacity. But the benefits of these batteries can continue with repurposing and recycling. BEV batteries can be reused and turned into energy storage systems for renewable energy power grids. By replacing degraded cells and installing a battery management system, UC Davis researchers can extend the life of used batteries for an additional 12 years.[2]

Recycling batteries provides a safe and sustainable way to dispose of batteries at their end of life. This can help recover valuable materials and reduce our reliance on new mining.

California should ensure that all electric vehicle batteries sold in the state have a second life by being recycled or reused.

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[1] *Three Revolutions in Urban Transportation,* Institute for Transportation and Development Policy. https://www.itdp.org/publication/3rs-in-urban-transport

[2] Pyper, Julia. Second Life: Carmakers and Storage Startups Get Serious About Reusing Batteries*, Green Tech Media.* June 30, 2020. https://www.greentechmedia.com/articles/read/car-makers-and-startups-get-serious-about-reusing-batteries

IV. All Hydrogen is not Created Equal

During the first panel, the representative from Toyota mentioned that the company supports a technology neutral path to creating more hydrogen fuel in California. This is the wrong approach. To the extent that California supports limited hydrogen technology, it should only promote production methods that do not rely on fossil fuels.

The Commission must also be wary of greenwashing in the hydrogen sector. Many companies define hydrogen derived from biomethane as “clean” or “renewable.” This is not the case.

Deriving methane and eventually hydrogen from forest residues involves an intensive industrial process with huge potential for leakage and thus greenhouse gas emissions. Dairy digesters are also prone to methane leakage and give environmentally harmful confined animal feeding operations (CAFOs) a perverse incentive to expand their dirty operations which are typically located in disadvantaged communities. California cannot be technology neutral in the fight for truly clean hydrogen production.

Further, the state should be judicious in its application of hydrogen vehicles. With historically limited resources for incentives and grants, the state should be skewing light-duty vehicle investments heavily in favor of BEVs. As of July 2020, there were a total of 8,414 hydrogen fuel cell vehicles in California[3]. In just the first half of 2019, 46,000 BEVs were sold throughout the state[4].

There may be a need for limited amounts of hydrogen in difficult-to-electrify heavy-duty sectors, but it is clear that consumers prefer light-duty BEVs to their fuel cell counterparts. The state need not waste money to close this gap.

Sincerely,

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Organizer and Policy Advocate

[3] By The Numbers, California Fuel Cell Partnership. https://cafcp.org/by_the_numbers
[4] Mitchell, Electric vehicle sales are up sharply in California, mostly due to Tesla, *Los Angeles Times*. September 11, 2019
https://www.latimes.com/business/story/2019-09-10/ev-electric-car-sales-california-tesla