FLUX AFFORDABLE ELECTRIC VEHICLES FOR All

August 30, 2018

Chair Mary Nichols and Board Members
California Air Resources Board
1001 I Street Sacramento, CA 95814

Dear Chair Nichols and the members of the California Air Resources Board,

Thank you for the opportunity to submit this letter and for the California Air Resources Board's long-time support of clean technologies. Having spent the bulk of my career in the solar PV and energy storage industries, I am happy to have contributed to the deployment of these solutions for the benefit all. However, it was always of concern to me that the immediate positive impacts of these new technologies, both environmental and financial, were often out of reach for low- and moderate-income (LMI) consumers, one reason being that many do not own their own home.

Due to the ubiquity of the automobile, I believe that electric vehicles (EVs) are the first clean technology that can directly serve all of California's citizens. LMI drivers, many of whom are disproportionately affected by geographic displacement and reliant on older, less reliable vehicles, could benefit most from having access to an EV. A lower total cost of ownership means more money can be spent on better quality housing, more nutritious food, and improving the well-being of children. However, as many LMI individuals live in multi-family housing (MFH), their adoption of EVs may be inhibited due to a lack of EV charging infrastructure at their residences.

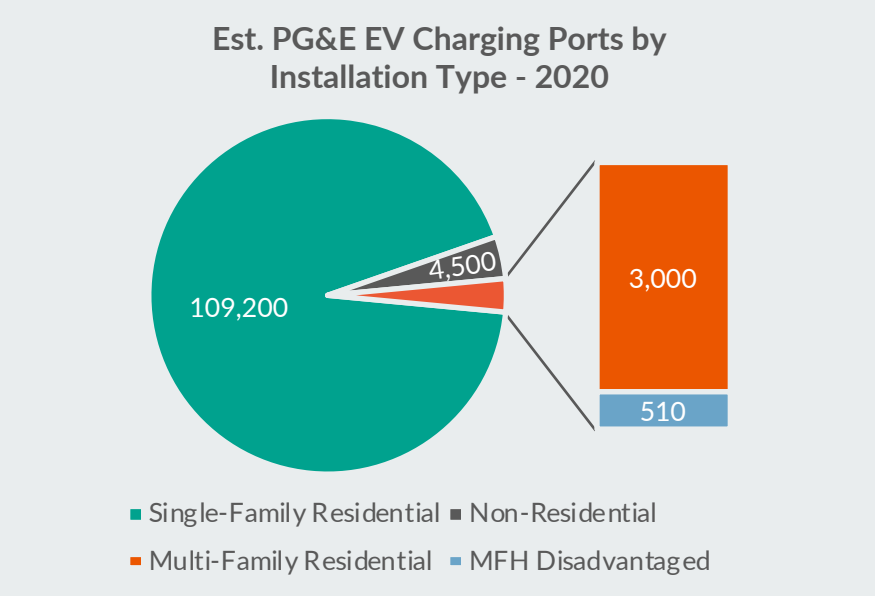
To encourage more rapid and widespread adoption of EVs by those who live in MFH, particularly in disadvantaged communities, Flux humbly recommends that the California Air Resources Board maintain the eligibility of fuel supply equipment (FSE) owners at MFH to generate low carbon fuel standard (LCFS) credits rather than assigning them to the electric distribution utility (EDU) to fund a point of purchase program as is proposed in the Second 15-Day modification document published August 13th, 2018. Flux does support a point of purchase program supported by single-family FSE.

The additional funding generated by the sale of LCFS credits from MFH FSEs will have minimal positive impact on a point of purchase rebate program that would otherwise be funded by LCFS credits sales from single-family residences with EV chargers. Conversely, the loss of MFH FSE owners' ability to claim the credits would effectively act as a regressive tax on LMI EV drivers and have a net-negative effect on EV sales to these consumers for the following reasons:

- LCFS credit revenue is critical to the business case for deploying MFH and useful in reducing total cost of ownership
- Lack of charging infrastructure at MFH is a major barrier to EV adoption
- Dealers that serve disadvantaged communities are unlikely to be effective at selling EVs, even if there is a substantial point of purchase incentive

LCFS Credit Generation: Single-Family Dwarfs Multi-Family Charging

Of the 400,000 and counting EVs (both BEV and PHEV) sold in California[1], 91% of EV owners reside in single-family homes.[2] This means, at a minimum, there are 364,000 residential charging ports in the state of California. PG&E serves about one-third of all Californians, which equates to approximately 109,200 single-family charging ports. For comparison, the PG&E EV Charge Network Program seeks to deploy 7,500 non-residential and MFH Level II charging ports by 2020.[3]



When all 7,500 chargers are installed, this will represent less than 7% of all charging points in PG&E's territory (this assumes the number of residential ports remains static, which is unlikely given projected growth in EV market penetration). Based on current program metrics, of those 7,500 charging points, fewer than half are slated for installation at MFH (40%, approx. 3,000 ports) and even fewer (17%, approx. 510 ports) are at MFH in disadvantaged communities (DACs) according to the Q4 2017 PG&E EV Charge Network Quarterly Report.[4] This means by 2020, MFH would contribute, at most, approximately 3% more LCFS credits (<0.5% from MFH in DACs) to PG&E's overall credit balance. These high-level figures conflict with the statement made by PG&E in the company's July 5th letter: "If residential EV charging credits from multi-family residences were no longer given to the EDUs, the credit revenue available to fund this point-of-purchase incentive could be significantly lower."[5]

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[1] Alliance of Automobile Manufacturers. "Advanced Technology Vehicle Sales Dashboard" Jun. 2018. Available: https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/

[2] Center for Sustainable Energy. "California Plug-in Electric Vehicle Owner Survey." Jul. 2012. Available: https://energycenter.org/sites/default/files/docs/nav/policy/research-and-reports/California%20Plug-in%20Electric%20Vehicle%20Owner%20Survey%20Report-July%202012.pdf

[3] Merchant, Emma Foehringer. "PG&E Launches Country's Largest Utility Sponsored EV Charging Program." Greentech Media, 17 Jan. 2018. Availabile: https://www.greentechmedia.com/articles/read/pge-launches-countrys-largest-utility-sponsored-ev-charging-program#gs.uk13mNQ

[4] PG&E. "EV Charge Network 2017 Q4 Report." Available: https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/program-participants/EV-Charge-Network_2017_Q4_Report.pdf

[5] Ali, Fariya from PG&E. "RE: Pacific Gas and Electric Comments Proposed Amendments to the Low Carbon Fuel Standard Regulation." Available: https://www.arb.ca.gov/lists/com-attach/255-lcfs18-AnJcPQRgBAgFbwBj.pdf

Loss of MFH LCFS Credit Generation Detrimental to EV Adoption in Disadvantaged Communities

Not only will the proposed changes stymie installations of FSE at MFH, they could also increase costs to EV drivers who live in MFH. Access to EV chargers at a place of residence is a critical element to accelerate EV adoption amongst all consumer groups. As EVs become cost-effective options for LMI drivers, many of whom reside in MFH in DACs, there must be some mechanism for FSE owners to recoup the high capital costs of deploying infrastructure. The simple resale of energy from the utility has little-to-no business case, unless drivers are billed at a significant markup. Flux believes this is neither an attractive nor equitable option. The ability to monetize LCFS credits encourages development of FSE at all MFH and is a way for FSE owners to generate meaningful revenue without increasing costs for LMI EV drivers just because they live in MFH.

Should MFH FSE owners retain the ability to generate LCFS credits, these credits could be sold to subsidize a driver's charging significantly. Flux calculates LCFS credit sales could lower the total cost of ownership by as much as $50 per driver per month. For reference, the median annual income for renter households in Oakland is $40,000.[6] This equates to approximately $31,800[7] after taxes, or $2,650 per month. Considering the average Oakland rent is $2,500 per month[8], $50 in additional savings could provide meaningful additional cash flow to the typical Oakland renter if they also owned an EV (which itself costs significantly less to own compared with an internal combustion engine car).

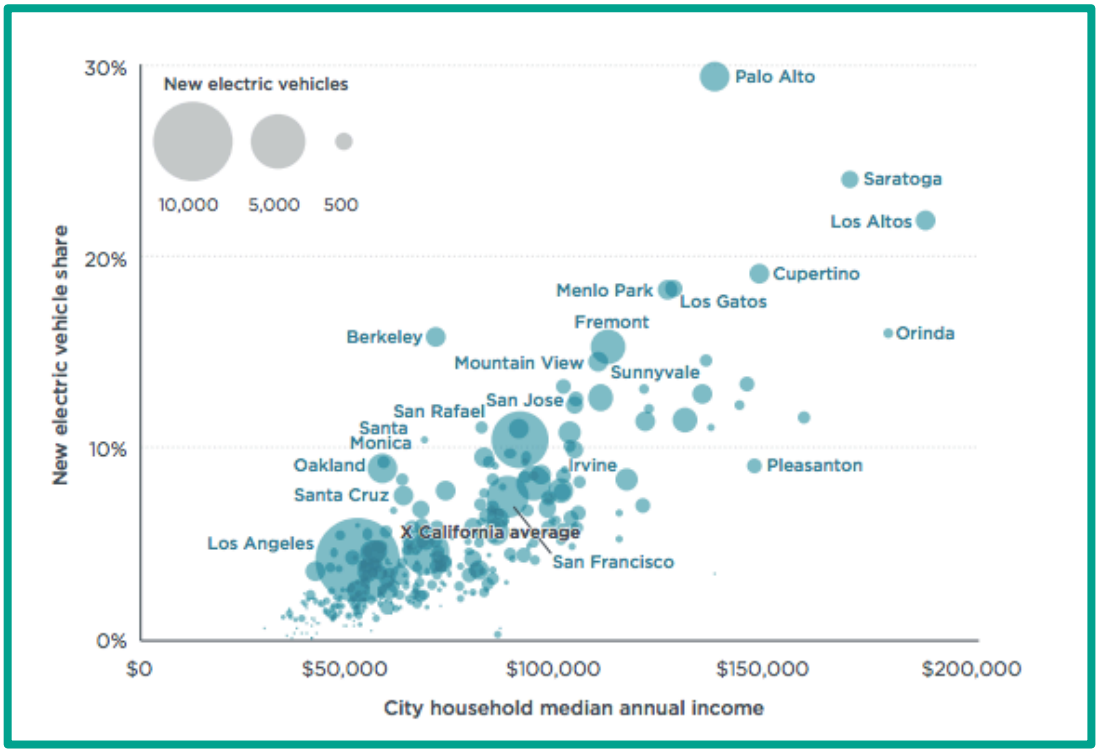
[6] Sciacca, Annie. "In costly Bay Area, even six-figure salaries are considered 'low income'." Mercury News, 22 Apr. 2017: Available: https://www.mercurynews.com/2017/04/22/in-costly-bay-area-even-six-figure-salaries-are-considered-low-income/

[7] Effective tax rate calculated using SmartAsset. Data available: https://smartasset.com/taxes/income-taxes#Yk8OXj0poE

[8] Sciacca, Annie. "In costly Bay Area, even six-figure salaries are considered 'low income'." Mercury News, 22 Apr. 2017.

If LCFS credits from MFH are assigned to the EDU for a dealer rebate program, PG&E makes the case that this will be a more equitable program in that "the point-of-purchase incentive should be available to all Californians from all residence types."[9] In reality, most of these rebates will likely be used by dealerships that are most effective at selling EVs, a majority of which are located in the highest demand markets, such as Palo Alto, Saratoga, and Los Altos.[10] This hypothesis is further supported by multiple studies that show most regular automobile dealers are ineffective at selling EVs and many actively discourage consumers from purchasing EVs altogether.[11] [12] [13] [14] The California Air Resources Board itself recently reported that amongst LMI consumers, "There is distrust of dealerships, and an overall feeling on the part of residents that costs are inflated especially when buying specialty vehicles, (such as zero-emission), or with incentives."[15] If LCFS credits from MFH accrue to the EDU, it is likely that LMI drivers will effectively be subsidizing EV purchases for California's wealthiest residents.

Share of California new vehicle sales that are electric by city median household income
Vehicle registrations from IHS Automotive; income data from U.S. Census - compiled by ICCT



[9] Ali, Fariya from PG&E. "RE: Pacific Gas and Electric Comments Proposed Amendments to the Low Carbon Fuel Standard Regulation."

[10] The International Council on Clean Transportation. "California's continued electric vehicle market development. May 2018. Available: https://www.theicct.org/sites/default/files/publications/CA-cityEV-Briefing-20180507.pdf

[11] Cahill, Eric, Jamie Davies-Shawhyde and Thomas S. Turrentine. "New Car Dealers and Retail Innovation in California's Plug-In Electric Vehicle Market." UC Davis. October 2014. Available: https://itspubs.ucdavis.edu/wp-content/themes/ucdavis/pubs/download_pdf.php?id=2353

[12] Sierra Club. "Multi-state Survey of the Electric Vehicle Shopping Experience." Aug. 2016. Available: https://www.sierraclub.org/sites/www.sierraclub.org/files/uploads-wysiwig/1371%20Rev%20Up%20EVs%20Report_09_web%20FINAL.pdf

[13] Ipsos RDA. "Electric Vehicle (EV) Sales Experience and Best Practice Study." Nov. 2017. Available: https://www.ipsos.com/en-us/news-polls/rda-finds-us-dealerships-not-prepared-ev-invasion

[14] de Rubens, Gerardo Zarazua, Lance Noel & Benjamin K. Sovacool. "Dismissive and deceptive car dealerships create barriers to electric vehicle adoption at the point of sale." Nature Energy. 21 May 2018. Available: https://www.nature.com/articles/s41560-018-0152-x

[15] California Air Resources Board. "Low-Income Barriers Study, Part B: Overcoming Barriers to Clean Transportation Access for Low-Income Residents" Feb 2018. Available: https://www.arb.ca.gov/msprog/transoptions/sb350_final_guidance_document_022118.pdf

An Alternative Proposal to Promote Innovation

In addition to point of purchase rebates, the California Air Resources Board might consider re-apportioning a small percentage of the abundant LCFS credit revenue from single-family FSE into a utility-funded program that promotes EVs in LMI communities. This program should encourage novel approaches that solve the holistic challenges of EV ownership, which includes not only purchasing the vehicle, but also access to FSE as well as strategies for hassle-free ownership. The seminal UC Davis study New Car Dealers and Retail Innovation in California's Plug-In Electric Vehicle Market notes that innovative new products like EVs require innovative new sales models. The report contrasts very low EV buyer satisfaction at traditional auto dealerships with Tesla, which ranked much more favorably in the same study due to its the "whole product" approach. The report states: "The magnitude of these disparities is extraordinary by industry standards and indicate the problem is likely systemic."[16] These findings are echoed by the more recent studies cited in the previous paragraph.

Conclusion

If the California Air Resources Board is committed to providing all of its citizens the opportunity to drive an EV, it should preserve MFH FSE owners' ability to claim LCFS credits for the benefit of LMI drivers. Otherwise, these rule changes may severely hinder progress in accelerating EV adoption amongst the state's LMI consumers.

Sincerely,

Andrew Krulewitz
EV Entrepreneur & Founder, Flux

ABOUT FLUX

Flux offers flexible, low-cost leases of electric vehicles. We seek to make driving an EV easy and affordable for everyone. Flux provides the vehicle, access to charging, and energy for one low price.

[16] Cahill, et al. "New Car Dealers and Retail Innovation in California's Plug-In Electric Vehicle Market." Pg. 7, Lns. 46-47