

**DOCKETED**

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**Funding Allocations Executive Order B-48-18 Zero-Emission Vehicles**

*Additional submitted attachment is included below.*

**Workplace Electric Vehicle Charging Infrastructure at CA Higher Education Institutions  
to Support a Potential Market of 3.4M Students, Faculty and Staff  
CA Energy Commission Docket 18-HYD-01  
May 21, 2018**

The University of California San Diego (UCSD) appreciates the opportunity to provide input on funding allocations to Governor Edmund G. Brown Jr.'s Executive Order B-48-18 to boost the use of zero-emission vehicles (ZEVs) and electric vehicle charging infrastructure to support a new target of 5 million Zero Emissions Vehicles (ZEVs) in California by 2030 and 250,000 vehicle charging stations. As shown in Table 1, the ten University of CA, twenty-three CA State University campuses and one hundred thirty-three CA Community College campuses represent a highly leveraged opportunity for accelerating, broadening and deepening ZEV affordability and charging accessibility to a diverse population of 3.1M students, .1M faculty and .2M staff for a total of 3.4M individuals that would potentially benefit from workplace charging if available.

*Table 1 Total Population of CA Higher Education That Would Benefit for EV Workplace Charging*

	UC	CSU	CCC	TOTAL
<b>Students</b>	252,000	460,200	2,400,000	3,112,200
<b>Faculty</b>	21,200	24,500	60,000	105,700
<b>Staff</b>	144,000	23,000	30,000	197,000
<b>Total</b>	417,200	507,700	2,490,000	3,414,900
<b># of CAMPUSES</b>	10	23	113	146

The sustainable business model demonstrated at some UC campuses can be replicated at the balance of other campuses if sufficient capital investment in charging infrastructure is made available and existing incentives programs by EV manufacturers is expanded to all campuses. For example, UCSD was named the 2017 Best Practices in Sustainable Transportation at the CHESSC based upon the replicability of its strategy presented below.

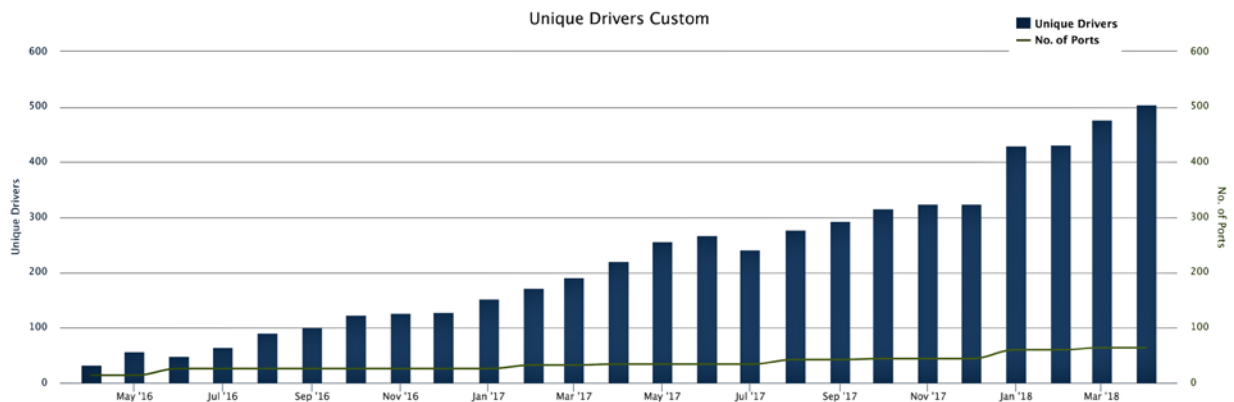
Since April, 2016, UCSD has installed 64 commercial charging portals and has dispersed 221 MWH (an annual growth rate of >100%) to 505 current EV commuters which represents 93,000 kg in total GHG savings. The \$32,196 of revenue has offset all of the electricity and processing fees plus a significant portion of their networking fees.

Concurrently, UCSD has negotiated basically fleet and discounted rates for its students, faculty and staff with BMW, Daimler, Ford, Chevrolet and Nissan. BMW received the 2017 GEELA from Governor Brown for its participation in the program. BMW, Ford and Nissan have subsequently expanded their incentives UC systemwide. The EV commuter fleet to UCSD has risen to 505, and it is growing at a rate of 25+ new EV Commuters PER MONTH. The improved affordability has been enabled by targeted

communications educating our students and staff on low income CA rebates and the “Cash on the Hood” pre-qualification program in San Diego. In the beginning of the program, the after rebate lease rate for a BEV to UCSD’s students, faculty and staff was under \$40/month plus tax on a Daimler Smart Car!

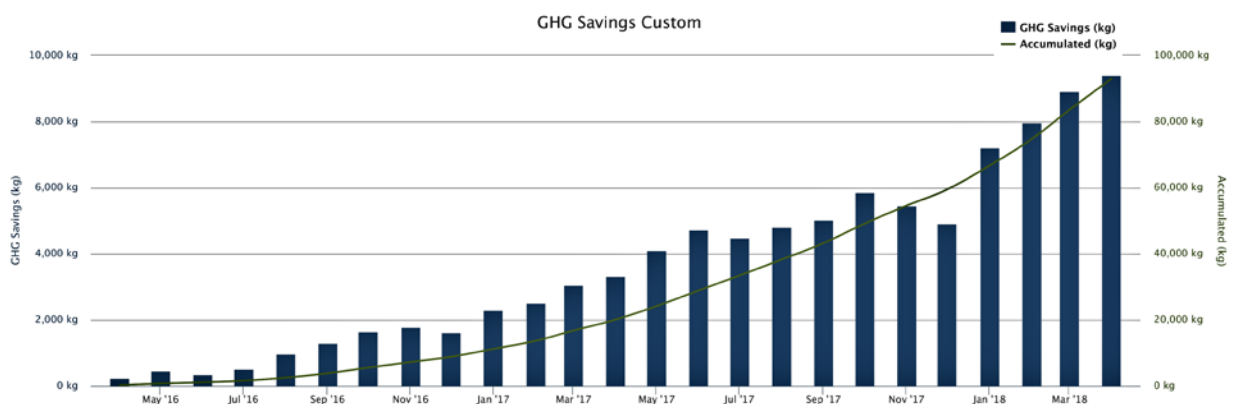
The validation of the “Field of Dreams” build it and they will come strategy is amply shown in Figure 1. The dramatic jump in EV commuters using workplace charging at UCSD starting in January 2018 is largely attributed to increasing the commercial charging portals from 48 to 64. Not only has this spike continued, but it is outpacing the previous growth rate over the first four months in 2018. To state it another way, it took just four months in 2018 to equal more than half of the previous twenty-one months of building up the EV commuter population at UCSD.

Figure 1 Twenty-Five Month Growth in Unique EV Commuters to UCSD's Commercial Charging Portals



As shown in Figure 2, the corresponding GHG Savings by industry standards for imported grid electricity have totaled 93,000 kg, but the current monthly rate of 9,400 kg indicates that the success of the program is achieving more than 10% of the GHG savings from the previous 23 months. It should be noted that many campuses have significant renewable distributed energy resources that will result in an upward revision of these savings when thoroughly analyzed in the near future.

Figure 2 GHG Savings Attributed to Workplace Charging at UCSD



The catalyst of UCSD’s success started with an initial CEC demonstration grant for prototypes of the ISO 15118 interoperability protocol. The responsiveness of the EV commuters and OEMs to that program led UCSD to pursue capital improvement funding under the CPUC Settlement Agreement with NRG. The net result was UCSD agreed to co-fund 186 electrical stub outs from the EVgo Make Ready program that offered to pay the first \$3000, and the campus would fund the balance of installation costs. This \$558,000

capital expenditure by EVgo released an equal amount of campus resources to create an infrastructure platform for Level II chargers that would ultimately be capable of serving 750 EV commuters. UCSD has witnessed the dramatic rise in charging equipment vendors, innovation in smart charging for improved vehicle grid nitrated, stronger warranties, higher reliability, and most importantly, features that improve consumer satisfaction such as wait listing, flex charging, and portal availability. Concurrently, the cost for the charging portals and their monthly networking fees have fallen significantly.

Thus, it is a strongly held belief that if adequate infrastructure investment can be provided the campuses of California's higher education public institutions, then the success at UCSD and elsewhere can be replicated and make a significant contribution to Executive Order B-48-18 that boosts the use of zero-emission vehicles (ZEVs) and electric vehicle charging infrastructure to support a new target of 5 million Zero Emissions Vehicles (ZEVs) in California by 2030 and 250,000 vehicle charging stations.

The support for infrastructure funding support to the UC, CSU and CCC campuses is warranted based upon their well-established common goals and objectives. The UC Office of the President has established a very aggressive Carbon Neutrality Initiative (CNI) and Sustainability goals for the entire system. The CNI calls for the UC system to be carbon neutral, including transportation, in Scopes 1 and 2 by 2025, and for Scope 3, including commuter travel by 2050. UC Fleet Managers have been electrifying its fleet where possible in order to reach the Carbon Neutrality Goals. By June of 2018, each campus will have successfully completed a *Sustainable Fleet Implementation Plan* to outline what resources, infrastructure and vehicle conversion plan is needed to help each campus and the UC Fleet to reach carbon neutrality. Many campuses have been incrementally converting their campus shuttle fleets to electric requiring new charging facilities and operations programs; UC Irvine will be the first campus nationwide to fully convert its campus shuttle fleet to all electric.

The UCOP has the following Sustainable Transportation Policies in place:

- By 2025, at least 50% of all new fleet light-duty vehicle acquisitions will be ZEV or hybrid. Currently, UC fleets are averaging 20% of all new acquisitions ZEV or hybrid.
- By 2050, each campus will strive to have no more than 40% of its employees and no more than 30% of all employees and students commuting to the location by SOV. In order to reach this goal, each campus is continuing to lower its SOV commuting populations.
- By 2025, each location shall strive to reduce its percentage of employees and students commuting by single-occupancy vehicles (SOV) by 10 percent relative to its 2015 SOV commute rates.
- By 2025, each location shall strive to have at least 4.5 percent of commuter vehicles be zero-emission vehicles (ZEV). By 2050, each location shall strive to have at least 30 percent of commuter vehicles be ZEV. By current surveys, approximately 1% of the UC commuter fleet is ZEV/PZEV.

To accommodate this growing demand, our CA higher education campuses need more workplace and campus EV charging infrastructure; however, by state law, no state campus funding can be used on parking (and therefore charging) facilities.

Respectfully submitted,

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