

December 4th, 2017

Sam Wade
Fuels Division Manager
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Submitted via email

RE: Comments of Smart EV Charging Group on ARB Pre-Rulemaking Public Workshop to Discuss the Development of Program Amendments (November 4, 2017)

Dear Mr. Wade,

Electric Motor Werks, Inc. ("eMotorWerks"), ChargePoint, WattTime – a subsidiary of the Rocky Mountain Institute ("RMI"), Sonoma Clean Power ("SCP"), MCE Clean Energy ("MCE"), Lancaster Choice Energy ("LCE"), Peninsula Clean Energy ("PCE"), Silicon Valley Clean Energy ("SVCE"), American Honda Motor Co., Inc. ("Honda"), Volta Charging ("Volta"), Chanje Energy, Inc. ("Chanje"), EDF Renewable Energy, a subsidiary of EDF Energies Nouvelles ("EDF Renewable Energy"), collectively known as the "Smart EV Charging Group," appreciate the opportunity provide comment on the November 4, 2017, workshop.

Executive Summary

The Smart EV Charging Group is supportive of CARB Staff intent to recognize the reduction in carbon intensity of certain EV charging activities, which can serve to further accelerate EV adoption and reduce the carbon intensity of the wider electricity grid through proactive measures by Community Choice Aggregators, EV Service Providers, Automakers, among others. These comments address the following key issues that should be incorporated into the final draft regulatory amendments prior to the formal rulemaking:

1. Verified Low CI Electricity Supply from Community Choice Aggregators
 - Aggressive procurement of renewable and low carbon electricity by load serving entities should be recognized with a lower than statewide average CI score in those instances when a Load Serving Entity's CI is submitted, verified and approved by CARB.
2. CARB Staff Proposal for Low-CI Electricity Supply and Smart EV Charging
 - As currently proposed by Staff, the recognition of Low CI electricity (via 100% Green Tariff subscription) and Smart Charging (via Time-of-Use periods) needs revision to provide opportunities for a diversity participants and reporting entities to benefit and still encourage further grid-integration of EV charging to benefit renewable energy deployment and marginal GHG emissions reductions.

3. Additional Clarity and Opportunities Re: EV Charging Synchronization Renewable Generation
 - Draft regulatory amendments were unclear regarding the intent to increase the opportunity for EV charging to operate in concert with renewable generation in order to receive a zero CI score for credit generation. Further clarity is required to induce synchronization with renewable generation, including to directly mitigate curtailment in the broader electric system.
4. EV-EVSE Interoperability Standards
 - The Smart EV Charging Group submits that the LCFS regulation is not the appropriate venue to mandate an interoperability standard for EV charging.

Verified Low CI Electricity Supply from Community Choice Aggregators (CCAs):

At the November 6, 2017, workshop, ARB Staff prudently recognized that charging an EV from a LSE portfolio with a lower CI content than the statewide grid average will contribute to further GHG reductions. The Smart EV Charging Group agrees with the fundamental logic of awarding incremental credits (i.e., the delta between: (1) credits electric distribution utilities receive and (2) the lower CI of a CCA or other retail electricity provider). ARB Staff also suggested that incremental low-CI EV credits would go to any party that can substantiate charging by a CARB-approved 100% “green” tariff. As we have noted in past comments, LSE-sponsored green-tariff programs have limited subscription levels and will not provide a meaningful opportunity incentivize and encourage low-CI charging. The Smart EV Charging Group respectfully recommends that the ARB’s EV changes be adjusted to allow “any party that can substantiate charging by a CARB-approved lower-CI source.”

In order to encourage and incentivize investments in EV charging programs (particularly CCAs with residential EV adoption programs), the ARB should enable retail electricity suppliers to apply for low-CI EV charging pathways that compares their portfolio to the statewide grid average and awards incremental LCFS credits according to the delta between the retail supplier’s portfolio CI and the statewide grid average CI. This methodology would not disrupt credit generation for incumbent electric distribution utilities. This methodology also does not pose significant “additional concerns” given the relatively small percentage of EV charging as compared to total statewide load. Even if it was possible to somehow adjust the statewide grid average to account for the incremental low-CI crediting proposed herein, we believe the change to the statewide grid average would be negligible. At this juncture, we believe it is more important to start sending signals that encourage all LSEs to pursue EV programs in their service territories. As EV-load increases in the state, the ARB may need to revisit the policies it develops for low-CI charging to ensure that statewide grid average is a reasonably accurate portrayal of the CI relating to the reported type and source of EV charging.

In making this comparison, the ARB should rely on carbon intensity data that is reported and verified through a system that is robust, tested and comparable to existing carbon accounting frameworks in California. One such protocol is the American National Standards Institute (ANSI) validation standard, which requires compliance with ISO 14065:2013, Greenhouse gas

reporting requirements. This standard is used for publication by The Climate Registry (TCR) and other independent publishers of GHG data. We agree with the ARB staff's statements at the November 6, 2017, workshop that the RPS, in-and-of-itself, is not an appropriate CI accounting framework for the LCFS. While there is a correlation between increased RPS and lower CI, RPS procurement alone is a poor proxy for carbon intensity for three reasons. First, some RPS resources (e.g. geothermal and biomass) generate GHG emissions, while other non-RPS resources (e.g. hydroelectricity) produce none. Second, RPS obligated entities have considerable flexibility in how and when they claim Renewable Energy Credits ("RECs") for purposes of RPS compliance. RECs can be banked, meaning that RPS compliance in a particular compliance period may not necessarily represent generation that occurred in that compliance period. Third, focusing on RPS content alone ignores the other side of the equation: the role of the non-RPS resources in the portfolio. An LSE with 60% RPS that relies on natural gas for the remaining 40% will have a CI that is very different from an LSE that relies on fossil free (e.g. hydro, energy storage) resources for the remaining 40% of its portfolio.

Mechanics: To enable, incremental low-CI charging, the ARB should utilize the following process:

- (1) Allow CCAs and other retail providers to apply for a separate fuel pathway. The retail provider opting in to the LCFS to generate incremental low-CI EV charging credits would need to apply for third party verification by an American National Standards Institute (ANSI) certified validation and verification entity using requirements defined in ISO 14065:2013, Greenhouse gases.¹
- (2) Once completed, these results could be submitted to a third party entity such as The Climate Registry (TCR) for final approval and publication.² This independently verified and published figure would apply to the previous calendar year and would require annual updates.
- (3) The ARB would estimate the total EV load in the CCA or other retail provider service territory consistent with the residential estimation methodologies the ARB uses for EDUs. The CCA would receive incremental low CI-EV credits based on the EV Charging occurring in cities or counties it serves within the EDU's larger transmission/distribution service territory.

We suggest The Climate Registry as they are an established non-profit organization that designs and operates voluntary and compliance GHG reporting programs globally, and assists organizations in measuring, verifying and reporting the carbon in their operations in order to manage and reduce it. They have worked closely with the ARB in developing their compliance protocols. California utilities that worked extensively on the ARB's Mandatory Reporting

¹ <https://www.ansi.org/Accreditation/environmental/greenhouse-gas-validation-verification/Default>

² The Climate Registry provides annual updates of LSE's carbon intensity. Available online at: <https://www.theclimateregistry.org/our-members/cris-public-reports/>

Regulation were also involved in the TCR's GHG accounting protocols. For example, PG&E was a founding member of The Climate Registry, joining in 2008, and PG&E uses TCR's methodology when compiling its annual emission statistics. While the climate registry may not be a perfect "apples-to-apples" comparison of an LSE's portfolio to the statewide grid average, the Climate Registry would provide a reasonably accurate methodology to compare an LSE's carbon intensity to the statewide grid average.

In sum, by creating a process for low-CI, incremental crediting, the ARB will enable CCAs and other retail providers to develop and/or expand new EV charging programs in their service territories. As explained above, it is feasible for the ARB to create a new fuel pathway process that will not disrupt existing processes. If CARB staff seeks to update the statewide grid average, having access to verified CI data would support that process.

Finally, the above process would be optional and available for non-EDU LSEs. If a Fuel Reporting Entity is reporting metered EV charging with electricity supply from a non-EDU LSE that has received approval from the CARB Executive Officer for the lower CI value, then the Fuel Reporting Entity may also utilize the lower than statewide average CI value for credit generation purposes.

CARB Staff Proposal for Low-CI Electricity Supply and Smart EV Charging

CARB Staff has proposed two opportunities for EV charging to receive LCFS credits beyond the statewide average electricity carbon intensity: 1) 100% green tariff subscription and 2) lower CI time of use charging. The Smart EV Charging Group appreciates Staff's desire to identify means to recognize lower CI electricity for EV charging, resulting in incremental LCFS credits; however, provides the following critical feedback:

1. 100% Green Tariff

In the upcoming rulemaking, we do not recommend relying, solely and as proposed by Staff, on Green Tariff programs for incremental crediting as discussed above. The impact would be limited to the extreme minority of customers participating in 100% Green Tariff programs. Additionally, as discussed above, RPS is not an accurate proxy for carbon intensity. To meet the electricity demand of that end customer for EV and non-EV consumption, the load serving entity has to maintain a diverse portfolio of electricity supply resources to ensure reliable service. As such, CI scoring for a green tariff should recognize the high percentage of renewable electricity sources as well as the use of fossil fueled electricity sources to maintain reliable service for end customers. The ultimate CI of a portfolio will vary significantly based on which resources are used to ensure reliability by matching supply with demand.

Recognizing 100% green tariffs as providing a low, but non-zero, CI fuel source for EV charging is appropriate and still may encourage proactive measures to reduce the coincident CI of EV charging to occur.

2. Time of Use (TOU)

EV charging occurring during certain hours of the day and times of the year will result in lower CI levels than the then established statewide CI level; however, the Smart EV Charging Group provides the following feedback on the TOU approach in order to support proactive CI reduction by all sectors and all periods of the year.

- A. TOU periods should be established to enable credit generation from metered residential (primarily overnight) and non-residential EV charging.
- B. To the extent possible, TOU periods should be established in a way that minimizes customer confusion regarding retail electricity tariff TOU periods.³
- C. TOU periods should encourage, rather than inhibit, participation in markets and/or programs that enhance renewable integration and reduce marginal GHG intensity.

CARB Staff should make available the dataset it used and/or plans to use to calculate the proposed emissions savings per TOU period in order to develop an optimal program design.

If a TOU crediting pathway is considered by CARB, the Smart EV Charging Group requests a commitment by CARB Staff to solicit and reflect EVSE/EVSP stakeholder input in the implementation planning phase, to ensure that reporting processes are not burdensome for Fuel Reporting Entities and the EV(SE) owner and operator charging experiences are not harmed or confused. For example, because TOU based charging itself may not require proactive measures, but does reflect lower CI of EV charging, Fuel Reporting Entities would not be required to provide evidence of time shifting. For certain use cases and TOUs, time shifting cannot be known because shifting occurs in time *and* location.

Additional Clarity and Opportunities Re: EV Charging Synchronization Renewable Generation

The Smart EV Charging Group requests that the next draft of regulatory amendments clarify the means by which EV charging synchronized with renewable generation can meet the requirement to receive a zero CI score for all or a portion of EV charging volumes, without occurring from “non-grid” sources. The comments of this Group previously attempted to outline a viable approach to recognize the metered charging occurring at an individual EV(SE) from both renewables and non-renewable sources. In addition, a new concept could be introduced to generate credits for mitigation of renewables curtailment. These approaches are as follows.

1. Synchronization of EV charging with colocated renewable generation

³ Establishing the evening TOU as early as possible would reduce confusion by residential customers regarding utility tariffs and any LCFS considerations. The IOUs off-peak periods largely begin after 8pm; with certain exceptions, such as PG&E E7 for grandfathered NEM customers.

- a. Reporting the metered portions of EV charging from renewable and non-renewable sources
 - b. Requiring either no concurrent REC creation or concurrent REC creation with EV charging and voluntarily retired
2. Synchronization of EV charging with off-site renewable generation, with the same components as above and building upon the framework proposed by Staff for synchronization of energy storage with renewable generation.⁴
3. Synchronization of EV charging with renewables curtailment
 - a. EV charging systems can be notified of forecasted and imminent over-generation conditions resulting in curtailment of renewable generation as reported by a California balancing area authority.
 - b. The CAISO provides information each day on the hour intervals in which, and the specific reason, renewables were actually curtailed.⁵
 - c. The amounts reported during applicable curtailment intervals would receive a zero CI score via the Lookup Table, while the remaining EV charging volumes would receive a standard non-zero CI score (or enhanced CI if established by this forthcoming rulemaking).

This concept of incentivizing EV charging during intervals of renewables curtailment emerged from discussions within the Smart EV Charging Group as a result of CARB Staff's concerns over the complexity of LCFS credit generation based on marginal GHG intensity as well as the desire to target midday charging with the TOU proposal.⁶ The implementation of a zero CI score for EV charging concurrent with renewables curtailment is a proactive measure that could be straightforward to administer and incentivizes a beneficial behavior that further reduces the CI of the grid and EV charging.

EV-EVSE Interoperability Standards

The Smart EV Charging Group strongly recommends that the receipt of LCFS credits based on metered EV charging shall not be predicated on the implementation of ISO 15118 for EV to EVSE communications. During the workshop on November 6, 2017, the apparent consensus of stakeholders was consistent with the Smart EV Charging Group's position. The California Public Utilities Commission is actively deliberating over vehicle-grid integration standards considerations. This process has been occurring in an extensive stakeholder working group for over 6 months and is the more appropriate forum to address these questions for *future* deployments; whereas, LCFS-related requirements could have a harmful effect on historical deployments.

⁴ As proposed similarly by Staff in the 2018 LCFS Preliminary Draft Regulatory Amendment Text for the September 22, 2017 meeting and with the proposed amendments of the Smart EV Charging Group in comments (pg 7-8) submitted on October 6, 2017.

https://www.arb.ca.gov/fuels/lcfs/workshops/10062017_smartev.pdf

⁵ <http://www.caiso.com/market/Pages/ReportsBulletins/DailyRenewablesWatch.aspx#curtailment>.

⁶ EV charging scheduled to minimize coincident GHG should still be eligible for a lower CI score if approved as a Tier 1 or 2 pathway by the Executive Officer.

About eMotorWerks

eMotorWerks, an Enel Group Company, developed and operates JuiceNet®, the leading electric vehicle (EV) cloud-based smart charging platform, and the company is the manufacturer of best-selling and best-rated residential EV charging station, the JuiceBox Pro, through Amazon.com and its own web store, with over 25,000 charging stations sold worldwide to date. eMotorWerks embeds the JuiceNet platform in its own residential and commercial EV charging stations, as well as third-party electric vehicle supply equipment (EVSE), including models from AeroVironment, Clipper Creek, Volta, Nayax, and a growing list of other manufacturers. JuiceNet is also being integrated into automobile models for direct smart control of EV charging via vehicle telematics. eMotorWerks is an “Opt-in Party” to the Regulation for EV charging.

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About ChargePoint

ChargePoint is the largest electric vehicle (EV) charging network in the world, with charging solutions for every charging need and all the places EV drivers go: at home, work, around town and on the road. With more than 43,000 independently owned charging spots and more than 7,000 customers (including workplaces, cities, retailers, apartments, hospitals and fleets), ChargePoint is the only charging technology company on the market that designs, develops and manufactures hardware and software solutions across every category. Leading EV hardware makers, automakers and other partners rely on the ChargePoint network to make charging station details available in mobile apps, online and in navigation systems for popular EVs. ChargePoint drivers have completed more than 30 million charging sessions, saving upwards of 29 million gallons of gasoline and driving more than 716 million gas-free miles.

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About WattTime, a subsidiary of the Rocky Mountain Institute

WattTime’s mission is to give everyone the freedom to choose the power they use. We are a non-profit subsidiary of the Rocky Mountain Institute catalyzing a movement to allow anyone to choose cleaner energy easily and automatically. Our technologies automatically detect which power plants will meet a user’s demand and how clean that power will be. With this information, WattTime makes it possible with a software update to select which power plants a device relies on. Anything connected to the internet that consumes, generates, or stores power can optimize its activity to automatically reduce its carbon and pollutant footprint and simultaneously help clean and renewable power plants compete on the grid.

Contact: Matt Evans, Managing Director, matt@watttime.org

About Sonoma Clean Power

Sonoma Clean Power (SCP) is the public electricity provider for Sonoma and Mendocino counties. We provide customers with the option of using cleaner electricity at competitive rates from sources like solar, wind, geothermal and hydropower. SCP is a not-for-profit public agency, independently run by the participating cities and counties of Sonoma and Mendocino. SCP invests locally to support Sonoma and Mendocino County renewable power and local jobs, and also around California to get the most affordable sources of clean power. SCP is helping get our customers into EVs because we can fuel them with clean, low-CI electricity. We have partnered with seven local dealerships to provide purchase credits. With additional SCP incentives, available rebates & tax credits, SCP customers save thousands when they switch to EVs.

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About Silicon Valley Clean Energy

Silicon Valley Clean Energy (SVCE) is a community choice aggregator that provides reliable, affordable, carbon-free electricity to the communities of Sunnyvale, Mountain View, Cupertino, Los Altos, Los Altos Hills, Campbell, Saratoga, Morgan Hill, Monte Sereno, Gilroy, Los Gatos, and the unincorporated areas of Santa Clara County. SVCE has been in service since April 2017.

Contact: Hilary Staver, Regulatory and Legislative Analyst, hilary.staver@svcleanenergy.org

About MCE Clean Energy

MCE is the first CCA program in California. MCE currently serves over 250,000 customer accounts in the counties of Marin and Napa, the cities of Richmond, San Pablo, El Cerrito, Benicia, Walnut Creek, and Lafayette. In 2018, MCE will expand its service to unincorporated County of Contra Costa, the cities of Concord, Martinez, Oakley, Pinole, Pittsburg, San Ramon, Danville, and Moraga. The expansion will approximately double the customer accounts served by MCE.

MCE's mission is to reduce GHG emissions through renewable energy resources and energy efficiency programs. MCE's default electricity product is 55% renewable, and MCE also offers two additional 100% renewable electricity products. Since 2013, MCE has been administering CPUC-approved Energy Efficiency programs, particularly focusing on low-income and multi-family housing, and is exploring other customer programs, including electric vehicles.

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About Peninsula Clean Energy

PCE is the fifth CCA program formed in the State of California. PCE serves the County of San Mateo and each of the twenty incorporated cities therein. PCE commenced service in October 2016 and, as of April 2017, PCE supplies electricity to all of its approximately 300,000 customers. PCE is committed to serving all of its customers clean affordable electricity with the goal of our energy supply being 100% GHG-free by 2021 and sourced from 100% RPS-eligible resources by 2025. While PCE is still exploring program options to drive climate mitigation strategies in partnership with state programs, PCE is keenly interested in vehicle electrification and developing programs similar to those at Sonoma Clean Power which drive electric vehicle adoption and provide other benefits to our communities.

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About Lancaster Choice Energy

Lancaster Choice Energy (LCE) is Lancaster's, locally operated, locally controlled electrical power provider. LCE began serving customers May 2015 and offers residents and businesses within the City of Lancaster a greener and affordable alternative to traditional investor-owned utilities. Lancaster has prioritized developing and maintaining a sustainable community for the enhancement and longevity of quality of life for residents and local stakeholders. Because higher electric vehicle adoption by residents and inbound commuters will result in fewer carbon emissions, thus contributing to the City's Zero Net Energy goal, LCE is expanding its electric vehicle charging station infrastructure citywide to encourage community adoption of electric vehicles. Additionally, Lancaster, in partnership with Antelope Valley Transit Authority, will soon be home to the first 100% all-electric public transit bus fleet in North America, expected to be completed in 2018.

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About Volta Charging

Founded in 2010, San Francisco-based Volta has developed, proven and fine-tuned an innovative approach to EV charging. Partnering with national brands that sponsor the public amenity, Volta deploys and operates networked chargers at prominent and convenient community venues such as shopping centers and civic entertainment districts. Charging is offered free to drivers, while site hosts benefit from hardware, installation and lifetime maintenance at no cost. The strategic destinations and careful siting of Volta community charging drive both high utilization and high visibility, establishing Volta as an incredibly effective catalyst for EV adoption. Last year in California, Volta stations powered more than 7 million free electric miles, avoiding nearly 3.1 million pounds of CO2 and delivering an industry-record average of 7 charges per Level 2 port daily. More than two thirds of non-EV drivers who see Volta's charging amenities say they will consider a plug-in electric vehicle for their next car purchase. To learn more visit www.voltacharging.com.

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About Chanje Energy, Inc.

Chanje Energy is a California-based OEM delivering [medium duty electric vehicles](#) and turnkey [energy infrastructure services](#) for the last mile industry. We're focused on creating sustainable solutions that improve how companies move people and packages from transportation hubs to their final destinations.

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About EDF Renewable Energy

EDF Renewable Energy, a subsidiary of EDF Energies Nouvelles, is a leading U.S. independent power producer boasting over 30 years of experience across a broad spectrum of services. Our core competencies in Project Development, Operations and Maintenance, and Asset Management enable us to ensure each project we touch performs at the highest level possible. Our mission is turning innovative renewable energy ideas and long-term relationships into an ethical, high value sustainable business.

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