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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking on the
Commission's Own Motion to Consider
Alternative-Fueled Vehicle Tariffs,
Infrastructure and Policies to Support
California's Greenhouse Gas Emission
Reduction Goals

Rulemaking 09-08-009
(Filed August 20, 2009)

BRIEF OF COULOMB TECHNOLOGIES, INC

February 8, 2009

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**OPENING BRIEF OF COULOMB TECHNOLOGIES, INC
ON PHASE I ISSUES**

I. INTRODUCTION

Coulomb Technologies, Inc. supports the scope of the rulemaking as outlined pursuant to rule 7.3 in the Assigned Commissioner’s Scoping Memo and the preliminary interpretation that providers of EV charging services will not be regulated as “electric corporations” or public utilities” under Cal Pub. Code Section 216 and 218. The priorities set forth in phase one of the Order Instituting Rulemaking (OIR) 09-08-009 will set the framework for a competitive and effective market for EVSE and enable the scale of electric vehicle deployment in the State of California. These objectives are critical to achieve the Commission’s goals in this OIR and those of Senate Bill 626.

Consumers will benefit from the efficiencies of a competitive market if the pricing and regulatory direction of the Commission fairly reflects the cost of the technology and the potential dominance of the large utility providers. This ruling provides that direction.

The electric vehicle infrastructure industry is in the early stage of development with private capital investment committed and growing in anticipation of electric vehicles expansion in the market within the next six months. Wall Street analysts are now predicting the EVSE market to be upwards of \$6B over the next 5 years¹. Industry participants represent growth potential and job generation that should not, in any way, be challenged by unneeded and unwarranted regulations.

The direction of the Commission will enable a market that has the potential to be fulfilled by a combination of Investor Owned Utilities, Municipal Owned Utilities and competitive market suppliers. This will encourage competitive market forces to bring benefits to consumers.

II. PROPOSAL FOR BRIEF

The Commission would not have regulatory authority regarding the price that an electric vehicle charging facility operator charges for charging services or other aspects of operation of such facilities unless the charging facility operator is a public utility by reason of its operation other than providing electric charging.

III. LEGAL ANALYSIS

The Scoping Memo relies on the logic of Decision (D.) 01-07-018 which the Commission states (in the context of natural gas), “resale of the commodity would not require any regulation by the CPUC.” The third party entities that simply supply access to electric vehicle charging or

¹ “Electric Vehicles on the Grid” Pike Research, 2009

bundled charging infrastructure are analogous to the CNG providers. Both supply transportation fuel for alternative fueled vehicles.

In their comments filed in the OIR, Sempra Energy Utilities (SEU) cited findings of fact that point to other elements of the decision that are parallel to the EV market. “This would foster a competitive market for the sale of CNG. If CNG is a viable fuel, then third parties other than utilities will be willing to invest in NGV service stations and invest in and accept the market risks association with such an investment”²

The EVSE market in California has investors that are willing to accept market risks and the fact patterns are similar to the CNG market in the 90s. Coulomb Technologies recently announced that it has secured \$14 million in Series B funding in a round led by west coast venture capital firms and energy technology investment funds.

Coulomb technologies agrees with Better Place³ in their Reply Comments filed that there is clear precedent to support a conclusion that third party EVSP’s providing bundled charging services are not public utilities subject to Commission regulation under Section 216 and 218. The reliance on both the facts, issues and legal reasoning in Decision 91-07-018 is well founded and supportable. Furthermore, public policy considerations presented below provide strong rationale for this decision.

I. POLICY ANALYSIS

The decision not to regulate third party providers of EVSE under section 216 or 218 of the Public Utilities Code will support the policy objectives of the California Public Utilities

² Sempra Utilities Comments, page 19

³ Reply Comments of Better Place On Alternative-Fueled Tariffs and Policies, p.2-6

Commission in this OIR. These objectives include: the widespread deployment of electric vehicles; the establishment of a robust EVSE market; economic development, job growth and the environmental benefits of reducing GHG emissions and our dependency on oil.

Furthermore, this decision will ensure that the EVSE market in California is competitive. The regulation of these providers as utilities is not practical or necessary to support the deployment of electric vehicles in the state and the policy objectives outlined below.

Policy Objective: The establishment of a robust EVSE network is an essential precondition for widespread deployment of electric vehicles. MDU's and Workplaces are critical to the deployment

Based on market projections provided in various government reports, including the California Air Resources Board and the University of California Davis Institute of Transportation Studies, electric vehicles will play a decisive role in the transition from a dependence on petroleum to diverse fuel sources.

Electric vehicles must be plugged into the grid to refuel, but infrastructure to provide this service does not yet exist. Prospective plug-in car owners want the assurance that they can charge their vehicles at home, while at work, or parked anywhere for extended periods.

In order for widespread acceptance of Electric Vehicles in California, fundamental issues have to be addressed. In the scoping memo, the Commission has identified providers of electric charging services that include owners of shared station arrangements, residential and commercial landlords that provide charging as a service to tenants, condominium association owners, their guests, and other employers that provide access to recharging facilities as a service to their employees.

In the multiple-dwelling, shared use and workplace locations described above, the major source of uniqueness is that the ratepayer and the consumer are not the same person. The driver doesn't own the charging station or the meter it is attached to.

This leads to interesting problems including:

- The electricity going through that station and its attached meter may be used by several different consumers during a day but current meters and billing system do not include the concept of one meter producing bills that are the responsibility of several consumers.
- In a condominium garage, the condominium association usually pays for charges on the electric meters in a garage, basically for garage lighting, yet the condo owners who don't have EV's will not want to pay for the EVSE, its electricity, or its maintenance.
- In an apartment building, if the owner doesn't take the first step by installing a station, will that inhibit EV owners from moving in, or inhibit current residents from buying an EV?
- What happens when an EV owner visits an apartment building? Are the policies different for a renter than for a visitor?

It is widely acknowledged that besides wanting to charge where they sleep, the next most important place to charge vehicles is at work. Workplace issues include:

- Determining desirable business models – can anyone charge their vehicle in the space, who pays, who's free?
- The electricity going through that station and its attached meter may be used by several different employees or patrons during a day but current meters and billing system do not

include the concept of one meter producing bills that are the responsibility of several consumers.

- In a workplace setting, the employer will often pay for charges on the electric meters; such as the case with Sierra Nevada Brewing Company. However there are several companies that would like to offer EV charging for their employees and patrons, yet they will not want to pay for the EVSE, its electricity, or its maintenance.
- If the company management doesn't take the first step by installing a station, will that inhibit their employees from purchasing new EV vehicles and will limit those with them to charging elsewhere.
- What happens if a visitor or patron of the company wants to charge their EV at a workplace with a charging station? With this system this consumer has an ability to take advantage of this station and the separate billing they offer which allows them easy access to a now expanded infrastructure.
- For a leased building does the property owner or the tenant pay for EV installation?
- Is the amount of energy used significant – how much energy should be budgeted for this in industrial buildings? How should we plan for the future when we build a parking space?

These problems, unless tackled, will severely reduce the deployment of electric vehicles.

Coulomb Technologies, through its networked stations has the ability to break through all these issues and allow the business model and interests of the property owner and tenant/employee to be aligned.

The objective of the competitive and unregulated market will be to deploy technologies that meet the needs of the residents, building owners and utilities. Stations should have Smart Grid

integration through demand response and utility monitoring and will have level II capabilities which will be upgraded as standards are approved. A revenue model should be established for each host to pay for recurring costs of electricity and maintenance. Networking features will measure and report station utilization, greenhouse gas and gasoline savings.

Policy Objective: Clarity in the regulatory arena will foster competition and enable a robust EVSE market in California

The industry consensus is that 3 Million Electric Vehicles⁴ will be in the global market by 2015, with 6 Million charging stations. The US market is projected to be a third of that, at 1 Million Vehicles and 2 million stations. One million vehicles is the goal set by the Obama Administration last winter.

California has about 9% of the new car markets, and most forecasts show about a million plug-in cars in the US by 2015. There should be about 90,000 -300,000 plug-in cars in California in 2015. This number is a range since California is also known as an early adopter state. But even with a conservative 90,000 plug-in cars here by 2015, we need 72,000 stations in the workplace, MDU, and shared- use facilities in that timeframe. This decision will provide clarity to address market demand.

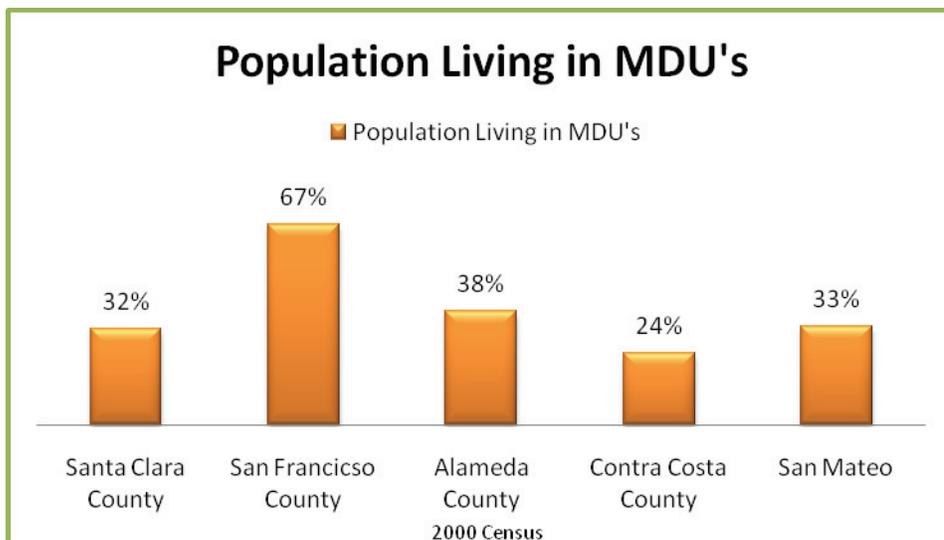
Behaviour patterns from a University of California at Davis study showed that 80% of plug-in vehicle owners wish to charge more than once a day. With only 54 million private garages, those can provide only 12% of the charging stations we need.

⁴ Electrification Roadmap “Revolutionizing Transportation and Achieving Energy Security” Electrification Coalition, Washington, DC, November 2009

On average, cars are parked roughly 23 hours per day in home garages, apartments, condominiums and hotel garages, employee parking locations, public lots and curbside.

In order for EVs to achieve their tremendous potential there needs to be a charging infrastructure that provides charging for those without traditional garages; and options for those who rely on public and workplace charging. Regulation of these providers will provide a chilling effect on the market.

The potential for this market is very robust and important in California. As a sample of the statewide market, the Bay Area data below demonstrates a majority of the population lives in the shared use/multi dwelling unit environment.



These counties include San Francisco, Santa Clara, Alameda, Contra Costa and San Mateo and contain populations ranging from 750,000 in San Mateo County to 1.8 million in Santa Clara County. Of the total population in these counties, 24% to 67%

reside in MDU's and are highly unlikely to have access to an electrical outlet to charge an EV.

San Francisco County has the most condensed population with 67% living in MDU's, and Contra Costa County has the smallest percentage of its population, or 24%, residing in MDU's. As this data reflects, there are a large percentage of cars that are not parked in private garages at night. This situation is most extreme in urban areas, the very places where an electric vehicle is an ideal solution for personal transportation. The counties discussed above have a clear need for charging stations located in MDU's.

The potential market for workplace charging is also significant. Many of the largest corporations in California are interested in making their business plans more sustainable through the incorporation of EV stations. These companies all desire an opportunity to either "green" their fleet choices and/or have an ability to offer their employees, vendors and/or patrons the option of charging on site.

It is not practical or advisable to require the MDU owners, corporations or public entities that wish to install and operate EVSE to be regulated as utilities.

Policy Objective: A competitive EVSE market will encourage economic development and generate job growth

The proposed decision not to regulate third party providers of EVSE will propel economic growth and create jobs by encouraging an open market. Coulomb, along with other third party providers, is an employer in northern California with the manufacturing capacity and experience to deploy this hardware immediately.

Deployment of the transportation infrastructure to support electric vehicles will require thousands of man hours of installation and create operational and manufacturing jobs. The production capability exists today and is completely “shovel ready.” Coulomb, as an example, has already deployed hundreds of stations throughout the United States and Europe.

The primary job type created will be in electrical contracting and related construction trades. Some of the jobs will be temporary. There will be benefit to the automotive industry through indirect means, by stimulating demand for new EVs. However, for purposes of more rigorous quantification of job impacts, the following table is provided. The table was used by the Bay Area EV Steering Committee for large scale deployment of EVSE in the region.

Assumptions	Reference					
Electrician Rates - 90th percentile	\$ 29.14	http://www.bls.gov/oes/current/oes492093.htm				
Manufacturing Rates	\$ 20.00	http://www.bls.gov/oco/cg/cgs010.htm				
Work Hours in 1 year (50 work weeks x 40 hours per week)	2,000					
Work Hours in 1 month	167					
Average number of hours to do site survey and preparatory/planning work	5.0					
Average number of hours required to install stations (electrical services, trenching sometimes, and provisioning)	10.0					
Average number of hours required to service stations (e.g. head replacement) - including travel cost	2.0					
ChargePoint Manufacturing Handling, Assembly and Test Hours	8.0	(Must consider parts buying, materials handling, shipping, etc.)				
Service Hours Required per Mo. per Charging Station	0.50	(e.g. small number for field replacement, wiping off bird doo-doo, vandalism, etc.)				
Number of Stations	100	500	1,000	2,500	5,000	10,000
Average Number of Stations per Site (e.g. per block or parking structure)	4	6	6	5	10	20
Number of Site Surveys	25	83	167	500	500	500
Number of Site Survey Hours	125	417	833	2,500	2,500	2,500
Manufacturing & Related Hours Required	800	4,000	8,000	20,000	40,000	80,000
Electrician Installation Hours Required	1,125	5,417	10,833	27,500	52,500	102,500
Total One Time Hours (manufacturing + installations)	1,925	9,417	18,833	47,500	92,500	182,500
Annual Service Hours	600	3,000	6,000	15,000	30,000	60,000
Number of Equivalent Jobs if All Done in 1 Mo.	11.85	58.00	116.00	292.50	570.00	1,125.00
Number of Equivalent Jobs if Manufacturing/Deployment Across Year	1.26	6.21	12.42	31.25	61.25	121.25
Across 6 months	2.53	12.42	24.83	62.50	122.50	242.50

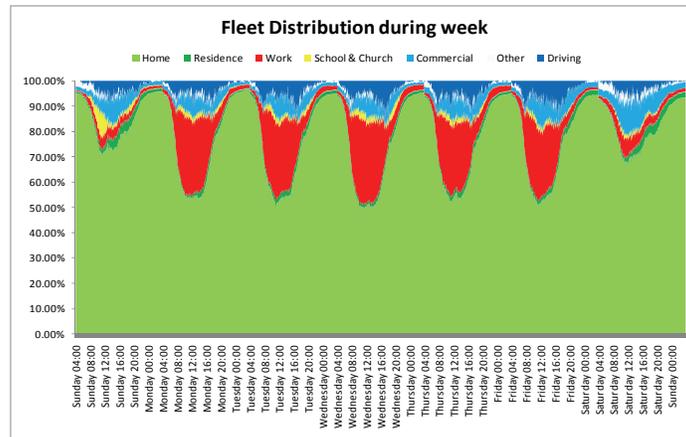
Other positive economic impacts include users will benefit from the lower cost of hardware and the highly reduced cost of electric fuel as opposed to gasoline. Additionally, electricity is a diverse, domestic, stable, fundamentally scalable energy supply. As the demand for electricity increases we will begin to see a reduction in demand for oil, thus improving our energy security.

Policy Objective: Enabling multiple charging locations for EV owners will escalate the environmental benefits of electric vehicles by lowering CO₂ and GHG emissions

The proposed decision will help achieve sustainable reductions of greenhouse gas emissions by creating a robust EVSE market and making charging stations available in shared use areas without fear of regulation. This will significantly improve the ability of Battery Electric Vehicles (BEVs) to displace fuel and lower CO₂ emissions.

A recent study published by SAE International on the “CO₂ Benefits of Electrification” found that if EV’s are charged at multiple opportunities and locations without restriction, the expected benefits on fuel consumption and CO₂ emissions are dramatically improved. Authored by General Motors, the study considers, among other things, the impact of consumer behavior, the availability of charging and the expected benefits based on vehicle operation.⁵

⁵ “The CO₂ Benefits of Electrification, E-REVs, PHEVs and Charging Scenarios, E.D.Tate and Peter J. Savagian, General Motors Corporation, SAE 2008-01-1311



The figure above illustrates the distribution of vehicle locations throughout the week. These locations are used, in conjunction with charging restrictions, to determine when charging is possible, when the battery is discharged, and how fast the battery is discharged. Note that at any moment, the majority of cars are at home (green). The weekly commute and dwell at work (red) is also plainly visible. These are the obvious candidate locations for recharging the electric batteries on EVs⁶

The study concluded that making charging available at work significantly improves the ability of the EV or PHEV to displace fuel and lower CO2 emission. Since the benefit of charging at work and elsewhere is large, consideration should include the probability of multiple charges per day.

Enabling large scale deployment of EVSE with multiple providers and business models will escalate the environmental benefits of these electric vehicles.

⁶ “The CO2 Benefits of Electrification, E-REVs, PHEVs and Charging Scenarios, E.D.Tate and Peter J. Savagian, General Motors Corporation, SAE 2008-01-1311

IV. CONCLUSION

In conclusion, the issues recommend on the scope of this proceeding, including the decision not to regulate the EVSE third party providers, should be supported by the California Public Utilities Commission as following established legal precedent and setting important policy objectives.

If California intends to lead the nation as a successful early market for electric vehicles, and become a leader in sustainable transportation, then it must continue to cultivate a competitive, open market that will encourage the substantial level of investment and innovation necessary to achieve the state's robust emissions reduction and petroleum displacement goals.

Coulomb Technologies appreciates the opportunity to comment on this critical issue, and looks forward to working with the Commission and other stakeholders to advance the EV market in California in a responsible, safe and expedient manner.

Respectfully submitted February 8,2010



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VERIFICATION

I am an employee of the respondent company herein, and am authorized to make this verification on its behalf. The statements in the foregoing document are true of my own knowledge, except as to matters which are therein stated on information and belief, and to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 8, 2010 at Campbell, California.

Respectfully submitted,



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PROOF OF SERVICE

I certify that, pursuant to Rule 1.9 of the Commission's Rules of Practice and Procedure, I have this day served this document, BRIEF OF COULOMB TECHNOLOGIES, INC, by electronic mail or, if no email address was provided, by United States mail, to each person shown on the attached service list.

I declare under penalty of perjury that the foregoing is true and correct and that this declaration was executed on February 9, 2010 in New York, New York.

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