



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

**FILED**  
11-12-10  
04:59 PM

Order Instituting Rulemaking on the Commission's own motion to consider alternative-fueled vehicle tariffs, infrastructure and policies to support California's greenhouse gas emissions reduction goals.	Rulemaking 09-08-009 (Filed August 20, 2009)
---	---

**COMMENTS OF EV SERVICE PROVIDER COALITION  
REGARDING PHASE 2 ISSUES**

In response to the October 27, 2010 Administrative Law Judge's Ruling Requesting Additional Information and Setting Comment Schedule ("Ruling"), the EV Service Providers Coalition ("EVSP Coalition") submits additional information and comments in response to questions identified in the Ruling.

The EVSP Coalition includes Better Place, Coulomb Technologies, and Ecotality. The members of the EVSP Coalition are all providers of electric vehicle ("EV") services in the California market and are active participants in this proceeding. The EVSP Coalition applauds the California Public Utilities Commission ("Commission") for developing a clear outline of metering options in the Staff White Papers, and engaging parties in workshops to present options and explore the tradeoffs for the integration of electric vehicles into the grid. The EVSP Coalition encourages the Commission to continue its support of competitive markets as unanimously approved in the Phase I decision, and to support the emerging market in EV services. The Commission's effort to address the issues defined in Phase 2 will be fundamental to the launch and long-term success of EV adoption in California. Whether EVs become an asset to the grid depends significantly on whether EV owners and EV service providers can accurately

and economically measure, bill and optimize the charging of these vehicles to protect the grid against peak load impacts. We welcome the opportunity to contribute to the record on these issues with the following responses to questions posed in the Ruling. The following comments are organized by subject, with general comments first followed by answers to the Commission's specific questions.

### **1. Separate Meter Costs**

A consensus emerged in the comments filed on the Metering White Paper that single, whole-house metering should not be encouraged or given preferential treatment by the Commission, and that consumers should have choice in metering and service options, especially in the early market. The Natural Resources Defense Council ("NRDC"), Friends of the Earth ("FOE"), and Division of Ratepayer Advocates ("DRA"), as well as all three of the major California investor-owned utilities and the members of the EVSP Coalition have all urged the Commission to make submetering a viable option for consumers.<sup>1</sup>

As discussed in several parties' comments, whole-house metering does not provide a mechanism for separately metering the EV load, which prevents effective allocation of EV-related costs and benefits and customer interface with the grid. Separate metering (in which a new, separate line and meter are installed for EV charging) addresses some of these problems, but is the least favorable scenario to foster innovation or market development because it requires additional financial burden which may discourage and hinder the deployment of infrastructure and purchase of EVs.<sup>2</sup> Submetering appears to be the best approach to avoiding the problems associated with whole-house and separate metering, but the Commission must take some immediate steps in order to enable submetering for EV customers.

---

<sup>1</sup> See e.g. Coulomb Technologies Comments at 11; Ecotality Comments at 3; Better Place Comments at 6;

<sup>2</sup> Ecotality Comments at 3.

Rather than preferentially guiding customers toward whole-house metering, as initially suggested by Staff, the Commission should encourage consumer education and choice in the early market, including information on costs and tradeoffs of all metering options.<sup>3</sup>

**a. For PEV customers that choose to use a separate meter, who should bear the cost of the separate meter and why?**

The customer should bear the cost of a second meter for a dual-meter set up. If the embedded meters in EV service equipment (“EVSE”) are used, there would be no separate costs to consumers, as the cost of the meter is included in the EVSE equipment cost.

**b. How should a separate meter be financed (on-bill financing, meter charges, upfront charges, etc) and why?**

As a transitional mechanism, customer assistance tools should be provided to help consumers that may require or prefer a dual-meter option to access a PEV rate. On-bill financing should be explored to give customers additional flexibility in deferring upfront costs of PEV adoption in the early market. However, on-bill financing of separate meters is a small part of the solution, and the Commission should look to enable submetering as quickly as possible to foster consumer choice in PEV services and rate options.

**2. Submetering Protocol**

**a. What is the Commission’s role and the utility’s role in developing a submetering protocol?**

The Staff Issues Paper and subsequent workshop discussions correctly recognized the advantages of enabled submetering in EV services and rates to consumers, and supporting smart charging management of EV load. Parties have identified numerous reasons for making submetering of EV load a viable option, including:

---

<sup>3</sup> Better Place Comments at 2.

- Providing price signals for off-peak charging through EV time-of-use rates
- Enabling participation in PEV-specific demand response programs
- Supporting consumer choice in third party provider EV services
- Determining credits under the California Low Carbon Fuel Standard
- Monitoring and verifying PEV charging for grid support services
- In the future, determining the “electricity fuel” highway / excise tax
- Supporting roaming and billing of PEV load across utility service territories

As noted by workshop participants, smart (AMI) meters do not currently provide the capability to disaggregate or directly manage EV load, and dual metering could be prohibitively expensive to EV customers. Submetering offers the best option for enabling *direct* metering of PEVs to ensure that PEV load can be accurately monitored, dispatched and managed to achieve environmental and grid reliability goals either by utility itself or by a third party service provider.

Given the broad consensus emerging among participants to this proceeding regarding the benefits of submetering, the Commission should take immediate steps to enable a submetering protocol. Specifically, the Commission should:

- Set an implementation roadmap for enabling submetering for EV load with a clear timeline and deadlines for developing a submetering protocol.
- Require utilities to support submetering through recognition of certification for embedded metering in EVSE and by implementing a mechanism for subtractive billing of EV load.
- Encourage a common definition/standard of submeter interface and access requirements and clear and reasonable performance capabilities in the areas of accuracy, security, and reliability.
- Assist the utilities in developing the capabilities to support submetering and subtractive billing.

There is currently no requirement for utilities to support EV services or direct EV billing. This is critical function that needs to be enabled as soon as possible. While early adopters may be willing to make accommodations on metering and rate options, deferring implementation of submetering would adversely impact competition and its resulting innovation in EV services and severely limit the ability to directly and separately manage and monitor EV load.

**b. What other agencies need to lead or be involved in the process?**

The Commission should establish a third party certification process for embedded metering in EVSE. This can be accomplished via a process similar to Underwriters Laboratory (“UL”) certification. It is not clear which California agency is best equipped to provide meter certification services for EVs. However, it is critical for EV adoption that a program facilitating meter certification be developed immediately. That program should reflect industry standards and requirements, minimize differences among utility requirements across territories, and be capable of accommodating expansion of the EV market over time.

The Commission should consider enabling a process by which a third party could be authorized to provide a single point of certification for embedded metering in California. This would require utilities, EV service providers and other stakeholders to develop an agreed upon set of requirements and processes for certifying meters in EVSE. Parties that receive certification from the third party would then be allowed to deploy EVSE across multiple utility territories.

There are good existing models for third party certification, including UL certification at the industry level, and the California Energy Commission’s program for Rule 21 certification of distributed generation equipment at the state level.<sup>4</sup>

**c. What are the key issues to be addressed in submetering?**

Enabling submetering of EV load across residential, commercial and public settings will require that the following issues to be addressed:

- (1) Certification of the embedded metering, including verification that meters meet applicable standards, process for “sealing” the embedded meter, and addressing any variability in metering requirements across residential, commercial and public settings, and utility territories.

---

<sup>4</sup> See <http://www.energy.ca.gov/distgen/interconnection/certification.html>.

- (2) In the case of third party certification process, identifying and authorizing an appropriate entity to supply this service. This process may include exploring whether an existing entity like Underwriter Laboratories could supply these services.
- (3) Subtractive billing, starting with determining cost-effective solutions to enable utilities to support integrated billing of EV load.

**d. Should the Commission consider adopting the metering and meter data requirements similar to the requirements developed in Decision 98-12-080 regarding direct access for PEV submeters?**

As noted above, the EVSP Coalition recommends identifying a qualified third party to implement and provide oversight of submetering certification, rather than applying the direct access rules. The direct access rules and processes were established under different circumstances and for entirely different purposes. They would be unnecessarily burdensome for EV infrastructure. Specific note should be taken of the nature of the EVSE / EV connection authentication signal, which assures energy flow through this submeter only to authenticated EV batteries. This mitigates the need for utility access to identify potential energy diversion to non-qualified load. For these reasons, the Commission should look at alternative streamlined approaches that can minimize barriers to EV infrastructure deployment.

### **3. Utility Customer Education and Outreach**

**a. What specific changes, if any, should the Commission consider to proposed language above?**

The utility role with respect to PEV customer education and outreach is to facilitate customer awareness of tariff options, metering options, technology options, billing options, installation options, and load management options.

Utility customer education and outreach efforts should present information accurately and neutrally that gives no preference to a particular rate option and related metering arrangement, charging level or technology, installation, third party EV services provider, and other aspects related to customer installation of customer premise electric vehicle supply equipment.

**b. What limitations, if any, should the Commission place on the utility in implementing customer outreach and education to avoid unfair competition with non-utility entities?**

To ensure consumers understand their choices for supporting EV charging, and to ensure that utility information does not create competitive advantages for individual parties, the utility education on EV products and services may need to be “all-in” or “all-out”. Since it would be difficult to pre-determine what types of entities or services should be part of a utility education program, the only way to ensure competitive neutrality is for the utility to either provide information on *all* EV product and service options in accurate fashion or limit the information provided only to the utility side of the services (rates, metering options and costs, demand response programs). If the Commission authorizes the utilities to provide information on EVSE or EV service options, the utility information must:

- (1) Accurately reflect the range of services provided by parties in the market
- (2) Make clear that the utility supports *all* EV services providers (provided they are certified and compliant with applicable standards), regardless of what EVSE or EV service option that consumer ultimately chooses.

Additionally, the Commission should consider the role of information clearinghouses, supported by neutral parties, such as the Clean Cities Coalition, in facilitating information and education on EVs for the end consumer or service provider. These independent third parties could serve as clearinghouses to provide utility and third party information for residential EV owners, EV fleet operators, property owners and EV service providers.

**4. Roadmap for Revisiting Rate Design**

**a. Parties are requested to recommend a procedural timeline for when the Commission should revisit PEV rate design.**

In the early market, existing time-variant PEV rates will likely be sufficient for early EV market customers. The Commission should revisit existing PEV rates after it has obtained a

sufficient understanding of consumer PEV usage and charging by early adopters. Two studies that will yield instructive results are the Department of Energy (“DOE”) EV Project and Coulomb ChargePoint America. The Commission will be able to acquire results from the EV Project on an ongoing basis and should retain flexibility to take earlier action on discrete issues as necessary to respond to customer needs and adoption barriers as they emerge.

Recognizing that mass market consumer adoption of EVs will likely require adjustments in rate options and tariff rules, the Commission should anticipate and collect information that would inform revisiting residential PEV rates, adjusting commercial rates and/or expanding EV rates to commercial locations, offering demand response program participation and credits for residential and commercial EV charging, and considering the potential differences between early adopter charging and mass market consumer behaviors. Some utilities, such as SDG&E, are using experimental EV rates to help provide further understanding of how PEV rates may adjust for the future. In addition, utilities should also study the potential benefits of EV charging on the grid and reflect these benefits in PEV rates.

In anticipating the need to make future changes to EV rates, the Commission should focus on all customer classes, not just residential charging. Commercial and public charging will play a critical role in the EV marketplace. Charging networks not only offer the opportunity to leverage smart charging technology to provide grid-balancing EV services, but will also offer EV consumers range assurance as they begin to drive longer distances. As a policy matter, the Commission must take steps to ensure that deployment of charging locations is not inhibited due to higher rates or surcharges on business hosts.

Data collection for the EV Project will continue through December of 2012 with a public report provided to the U.S. Department of Energy in the spring of 2013. The Commission

should work with these programs to analyze available data on an ongoing basis, and ensure that early market data is reflected in appropriate modifications to PEV rate design.

**5. Electric Vehicle Service Provider (EVSP) – Applicable Rate Schedules**

**a. For electric vehicle charging in non-residential settings, what rate schedule(s) should customers with electric vehicle charging qualify for (e.g. General Service or a new EVSP rate schedule) and why?**

There should be EV rates that apply equally to EVSP and directly to end user customers.

The Commission should not create a new EVSP rate in the early market. However, over the next two years, the Commission should study the development of an EV rate, applicable to EVSPs, that holistically recognizes the benefits of both residential and commercial charging as an integrated, mobile and distributed load that is capable of providing multiple benefits to the electric grid, including;

- generation system (ISO based) demand response,
- distribution system (utility operations) based demand response,
- local smart charging to avoid overload of service transformers, and
- economic dispatch and load dispatch to support use of renewable energy.

**b. For electric vehicle charging in residential settings, what rate schedule(s) should customers with electric vehicle charging qualify for (e.g. residential, General Service or a new EVSP rate schedule) and why?**

EV customers in residential settings should be able to choose which rate schedule they would prefer based on how they would like to be billed -- either via a single residential home rate for energy used or residential TOU rates accounting for bundled service incorporating separate metering for PEV use. The integration of metering inside an EVSP's smart EVSE should enable drivers to take advantage of an EV rate schedule that would reward customers accounting for the

amount of energy shifted charging off peak using EVSP equipment and aggregated charging services beneficial to the grid.

There should not be an EVSP rate in the early market. As a customer of the utility, an EVSP should receive the same rate options as any other customer owning a PEV. However, as discussed above, the Commission should study rate design that reflects the benefits of a holistically-managed EV charge infrastructure system consisting of both residential and commercial infrastructure operating as an integrated load.

**c. What special conditions, if any, should be added to existing rate schedules pertaining to electric vehicle charging?**

It is difficult to recommend specific special conditions until underlying issues are resolved. As noted above, the EVSP Coalition supports exploring the possibility of adding to existing rate schedules significant credits for participation in demand response. EVSE metering will enable demand response with little (if any) investment by the utility. Therefore, it seems that customers should receive credit similar to credits currently allowed for utility thermostat programs, at a level that reflects the fact that the customer (as opposed to ratepayer) has made the initial investment in enabling infrastructure.

After threshold structural and policy issues are resolved, the Commission should offer parties an additional opportunity to offer recommendations regarding tariff language and special conditions.

**d. What changes to Electric Rules are needed, if any, in the near-term pertaining to electric vehicle charging and why?**

To accommodate smart charging EVSE which includes embedded metering equipment some changes are needed to existing Electric Rules that will allow, at the option of the customer, for this type of metering to be installed by a third party EVSP in cooperation with the utility, and

that will allow EVSPs access to customer usage data. Implementing this type of metering will require changes both to existing rules and to the utilities' billing systems to implement "subtractive billing," that is, a method by which the billing utility will subtract the PEV meter load from the main meter load. The Commission should encourage an aggressive program to support EVSP services including demand response and EVSP submetering.

**6. Smart Grid Overlap Issues – Schedule Modification**

**Should the Commission direct utilities to include cost-effective "smart charging programs" targeting PEV charging in their next Demand Response application?**

The EVSP Coalition strongly supports coordination between this proceeding and the Smart Grid proceeding on overlapping issues. The Commission should direct utilities to include cost-effective "smart charging programs" targeting PEV charging in their next Demand Response application, including addressing the role of EV service providers in facilitating and supplying smart charging services to utilities. Smart charging clearly has the potential to provide demand response services, and there is no reason not to begin exploring how to incorporate smart charging into the utilities' demand response programs as soon as possible.

Dated: November 12, 2010

Respectfully submitted,

By: \_\_\_\_\_ /s/

Jason Wolf  
Vice President, North America  
Better Place  
1070 Arastradero Road, Suite 220  
Palo Alto, CA 94304  
(650) 845-2800  
Jason.wolf@betterplace.com

By: \_\_\_\_\_ /s/

Richard Lowenthal  
Chief Executive Officer  
Coulomb Technologies, Inc.  
1692 Dell Ave.  
Campbell, CA 95008  
US Toll Free: +1-877-370-3802  
Tel: +1-408-370-3802  
info@coulombtech.com

By: \_\_\_\_\_ /s/ \_\_\_\_\_

Donald B. Karner  
President, ECOtality North America  
430 S. 2nd Ave.  
Phoenix, AZ 85003-2418  
Phone: 602-716-9576  
Fax: 602-256-2506

PROOF OF SERVICE

I declare that:

I am employed in the County of Sacramento, State of California. I am over the age of eighteen years and am not a party to the within action. My business address is ELLISON, SCHNEIDER & HARRIS; 2600 Capitol Avenue, Suite 400; Sacramento, California 95816; telephone (916) 447-2166.

On November 12, 2010, I served the attached *COMMENTS OF EV SERVICE PROVIDER COALITION REGARDING PHASE 2 ISSUES* by electronic mail or, if no e-mail address was provided, by United States mail at Sacramento, California, addressed 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 November 12, 2010, at Sacramento, California.

/s/

\_\_\_\_\_  
Karen A. Mitchell

## SERVICE LIST

R.09-08-009

a.vogel@sap.com  
aaron.singer@bmw.com  
abb@eslawfirm.com  
AChavez@ecotality.com  
aconway@dmv.ca.gov  
Adrene.Briones@ladwp.com  
agc@cpuc.ca.gov  
ahl@cpuc.ca.gov  
ahuang@arb.ca.gov  
andrea.moreno@sce.com  
andrew.mcallister@energycenter.org  
angie\_doan@plugsmart.net  
Ann.Bordetsky@betterplace.com  
atrowbridge@daycartermurphy.com  
axtw@pge.com  
AYergin@gridpoint.com  
bchang@svlg.org  
bcragg@goodinmacbride.com  
bdicapo@caiso.com  
bfinkelstein@turn.org  
blake@consumercal.org  
Bob@EV-ChargeAmerica.com  
Bob@EV-ChargeAmerica.com  
bock@avinc.com  
brian\_tinkler@ahm.honda.com  
bsl@cpuc.ca.gov  
BWT4@pge.com  
californiadockets@pacificcorp.com  
carmine.marcello@hydroone.com  
case.admin@sce.com  
Case.Admin@sce.com  
cassandra.sweet@dowjones.com  
cbrooks@tendriline.com  
cchilder@arb.ca.gov  
cem@newsdata.com  
chappella@co.monterey.ca.us  
cjlw5@pge.com  
ckuennen@ci.glendale.us  
clu@cpuc.ca.gov  
colleenquin@gmail.com  
coutwater@libertyplugins.com  
cread@ecotality.com  
crv@cpuc.ca.gov  
ctd@cpuc.ca.gov  
cwl@cpuc.ca.gov  
dave.barthmuss@gm.com  
david.almeida@energycenter.org  
david.eaglefan@gmail.com  
david.patterson@na.mitsubishi-motors.com  
david@dwassociates.us  
dgrandy@caonsitegen.com  
Diane.Fellman@nrgenergy.com  
diarmuid@teslamotors.com

dickinson@avin.com  
dietrichlaw2@earthlink.net  
dmodisette@cmua.org  
DNiehaus@SempraUtilities.com  
Douglas.Marx@PacifiCorp.com  
edwin.lee@sfgov.com  
EGrizard@deweysquare.com  
ek@a-klaw.com  
ekeddie@arb.ca.gov  
eks@cpuc.ca.gov  
ELL5@pge.com  
enriqueg@greenlining.org  
epetrill@epri.com  
e-recipient@caiso.com  
eric@ethree.com  
fcc@cpuc.ca.gov  
fdms@electradrive.net  
ffletcher@ci.burbank.ca.us  
filings@a-klaw.com  
flangit@ci.azusa.ca.us  
forest.williams@mindspring.com  
fxg@cpuc.ca.gov  
gina@wspa.org  
gmorris@emf.net  
GO'Neill@energy.state.ca.us  
gtd@cpuc.ca.gov  
helsel@avinc.com  
hillary.dayton@fluor.com  
hugh.mcdermott@betterplace.com  
jamie@jknappcommunications.com  
Janet.Combs@sce.com  
Jason.Wolf@betterplace.com  
jay@pluginamerica.org  
jellman@winnr.com  
jhall@calstart.org  
jharris@volkerlaw.com  
jlehman@anaheim.net  
jluckhardt@downeybrand.com  
jme@pge.com  
jody\_london\_consulting@earthlink.net  
johanna.partin@sfgov.com  
Julee@ppallc.com  
julian.durand@qualcomm.com  
jung.zoltan@epa.gov  
jviera@ford.com  
jw2@cpuc.ca.gov  
jwiedman@keyesandfox.com  
jzr@cpuc.ca.gov  
Karin.Corfee@kema.com  
kevin.webber@tema.toyota.com  
kfox@keyesandfox.com  
kldavis@midamerican.com  
kleacock@dmcgreen.com

klynch@cityofpasadena.net  
kmorrow@etecevs.com  
krose@dmv.ca.gov  
kwalsh@fiskerautomotive.com  
llhg@pge.com  
lau@cpuc.ca.gov  
lburrows@vpvp.com  
Leila.Barker@ladwp.com  
leilani.johnson@ladwp.com  
liddell@energyattorney.com  
lmh@eslawfirm.com  
lmitchell@hanmor.com  
lms@cpuc.ca.gov  
lwt@cpuc.ca.gov  
Marcelo.DiPaolo@ladwp.com  
marcreheis@wspa.org  
martin.liptrot@ge.com  
mbaumhefner@nrdc.org  
mc3@cpuc.ca.gov  
mdjoseph@adamsbroadwell.com  
mgo@goodinmacbride.com  
michael.schmitz@iclei.org  
michelle.mishoe@pacificorp.com  
mike.ferry@energycenter.org  
mkarwa@leviton.com  
mlaherty@cisco.com  
mmattes@nossaman.com  
mnelson@mccarthyllaw.com  
mpieniazek@drenergyconsulting.com  
mpsweeney@earthlink.net  
mrw@mrwassoc.com  
mschreim@core.com  
MWT@cpuc.ca.gov  
npedersen@hanmor.com  
nsuetake@turn.org  
Oscar.Alvarez@ladwp.com  
Oscar.Herrera2@ladwp.com  
philm@scdenergy.com  
pierojd@udel.edu  
Priscila.Castillo@ladwp.com  
pva@cpuc.ca.gov  
Ralph.Moran@bp.com  
regrelpuccases@pge.com  
RGiles@SempraUtilities.com  
richard.lowenthal@coulombtech.com  
rl4@cpuc.ca.gov

rmd@cpuc.ca.gov  
robertgex@dwt.com  
roberto.bocca@weforum.org  
roche@avinc.com  
rpopple@teslamotors.com  
saluja@capricornllc.com  
sas@a-klaw.com  
SAZ1@pge.com  
sbadgett@riversideca.gov  
Scott.Briascio@ladwp.com  
scr@cpuc.ca.gov  
SDPatrick@SempraUtilities.com  
Sean.Beatty@mirant.com  
sephra.ninow@energycenter.org  
sfr@sandag.org  
sfr2@pge.com  
shears@ceert.org  
ska@cpuc.ca.gov  
slsarris@greenfuseenergy.com  
SMK@cpuc.ca.gov  
smui@nrdc.org  
ssmyers@att.net  
Sven.Thesen@betterplace.com  
svolker@volkerlaw.com  
syndi.driscoll@ladwp.com  
tam@communityrenewables.biz  
tatsuaki.yokoyama@tema.toyota.com  
than.aung@ladwp.com  
tjl@a-klaw.com  
toconnor@edf.org  
trae@kpcb.com  
ttutt@smud.org  
Vaughn.Minassian@ladwp.com  
vic@theprossergroup.com  
vsmith@qualcomm.com  
wchen@ecsgrid.com  
WoychikEC@bv.com  
wwester@smud.org  
xingxin.liu@sap.com  
Yulee@theICCT.org

CAROLYN LOZO  
CALIFORNIA AIR RESOURCES BOARD  
1001 I STREET  
SACRAMENTO CA 95814