FILED
10-05-09
04:59 PM

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 emissions reduction goals.	Rulemaking 09-08-009

OPENING COMMENTS OF BETTER PLACE

In accordance with Rule 6.2 of the California Public Utility Commission ("Commission") Rules of Practice and Procedure and the August 24, 2009 Order Instituting Rulemaking to Consider Alternative-Fueled Vehicle Tariffs, Infrastructure and Policies to Support California's Greenhouse Gas Emissions Reductions Goals ("Order"), Better Place respectfully submits the following comments.

I. Introduction

Better Place is a California company headquartered in Palo Alto, CA. As a global electric vehicle (EV) service provider, Better Place is investing in infrastructure to speed mass adoption of electric vehicles. We have retained over $300M toward this end, and currently have ongoing deployments in Israel, Denmark and Japan. Better Place has active operations in over 10 countries and territories, including Germany, Australia, China, France, United Kingdom, Netherlands, Canada and the U.S.

Better Place appreciates this opportunity to provide preliminary comments on the questions identified in the Commission's Order. It is clear from the Order that the Commission has already devoted thoughtful consideration to EV issues, and the Commission understands the need for policies that encourage investment in both EVs and infrastructure necessary to serve EV users. We believe this proceeding is vitally important to paving the way to a successful future for electric vehicles in California. Better Place intends to participate as an active party in this proceeding. The responses provided in this initial filing do not necessarily reflect the full scope of issues Better Place may ultimately address in the course of the proceeding.

II. Executive Summary

Better Place commends the Commission for promptly moving to address critical issues facing the integration of electric vehicles into the electricity grid in the context of achieving the State's climate and energy policy priorities, including reducing petroleum consumption and greenhouse gas emissions and expanding the use of renewable energy resources. Mass EV adoption can produce tangible benefits for all California residents, including reducing electricity costs overall, and we therefore support the Commission's involvement in setting policies that actively promote EV adoption.

The Commission's questions are forward-thinking and detailed in identifying important issues that need to be discussed and resolved in the course of EV adoption. Better Place's initial comments discuss threshold policy issues and respond to the Commission's specific questions to the extent possible. As discussed below, many of the implementation questions raised in this proceeding can only be addressed in any meaningful way after broader policy issues have been resolved.

As the Commission has noted, a significant number of electric vehicles will be entering the California market as early as 2010-2011, and there is a clear need for infrastructure deployment to support both early adopters and future mass market EV management requirements. The EV market is developing rapidly. For example, in partnership with Renault, Better Place has committed to a volume of over 100,000 electric vehicles to be deployed in Israel and Denmark – twenty times the number of electric vehicles that were on the road in California at the height of the late 1990s and early 2000s heyday of first generation EV adoption. Better Place is deploying infrastructure networks to support EVs in these markets, and fully recognizes the challenges of aligning timely infrastructure deployment with EV adoption.

The EV market that exists today is increasingly driven by an emerging "ecosystem" of new companies that are creating innovative solutions to enable EVs on a global scale. Better Place is one of several companies that will operate as an independent service provider by deploying and managing EV charging infrastructure and providing related products and services designed to make EV adoption convenient and cost-effective to consumers. At the early stages of this industry, we encourage the Commission to set rules that do not foreclose new business models. Ultimately,

California residents and ratepayers will be best served by policies that ensure a viable competitive market in which investment and entrepreneurship is deployed to solve the barriers and challenges of mass-market EV adoption.

It is vitally important for the Commission to take advantage of this opportunity to help create a dynamic market environment in which new technologies and business models can emerge to serve EV customers. As the Commission is aware, its decisions have had a precedent-setting effect not just in California but in the U.S. and globally. California, and the Bay Area in particular, will be ground zero for EV adoption. As a result, the Commission's approach in this proceeding is likely to have a far-reaching impact on EV market dynamics outside of California, and we look to the Commission for leadership in this matter.

Better Place supports the Commission's efforts to prepare for market entry of electric vehicles in 2010-2011, and recommends the Commission first address the following policy priorities to ensure a dynamic EV market in California moves forward:

(1) Affirm that independent third party EV charging service providers are not regulated entities

(2) Foster a competitive market that encourages private investment and innovation, and does not foreclose new business models that remove EV adoption barriers

(3) Provide targeted public investment in infrastructure deployment to support market development, recognizing the societal benefits of EV adoption

Given the complexity and breadth of the issues raised in the OIR and the nascent nature of the industry, we believe the Commission should prioritize its efforts. We recommend the Commission first resolve any regulatory ambiguity for market participants. Secondarily, we encourage the Commission to set guiding principles for developing further policies around EV grid integration that recognize the importance of a viable competitive market in making EV adoption convenient and cost-effective.

Today, California attracts significant private investment in cleantech innovation that is helping to drive economic recovery and jobs creation throughout the state, as well as unlocking solutions to the state's energy and environmental priorities. We look to the Commission, as a key stakeholder in setting the regulatory framework, for leadership in

ensuring California's policies support and nurture innovation that can lead to viable mass-market energy solutions.

III. Response To Questions

Residential Charging Infrastructure and Policy Questions

1. What types of residential metering arrangements are appropriate for PHEVs and BEVs and why? Should the Commission require a particular metering arrangement, or should it allow more flexibility in metering arrangements by investor-owned utilities or others? If so, why?

2. How will electric vehicle meters or sub-meters and EVSE's interact with the advanced meters currently being installed across the service territories of investor-owned utilities? What policies does the Commission need to consider concerning any such interaction?

3. What kinds of equipment and electrical improvements will typically be needed to support residential charging for PHEVs and BEVs, e.g., EVSE's, metering, electrical system upgrades? Who should pay for residential equipment and improvements required to support PHEVs and BEVs, and why?

Better Place Response to Questions 1 through 3:

As part of the larger objective of mass EV adoption, driven by a competitive market that encourages investment and innovation, market participants utilizing advanced metering technologies will drive overall costs down. Specifically, Better Place supports the use of submetering to track EV electrical use, where the submeter is a component of the EVSE. Given the tamper-proof nature of existing submetering technology and the cost and process burden of setting up traditional dual meter system, it is in the customer's interest to allow the option of customer and third party "ownership" of a utility-grade submeter.

Further, to enable various Electric Vehicle Service Equipment ("EVSE") and third party EV service providers to pay for electricity associated with EV use, there will be a need for a "true-up" system wherein the electricity supplied through the EVSE submeter can be charged to a third party and simultaneously removed from the residential electrical bill.

The IOUs have all expressed interest in providing advanced metering and the associated EV-related communication systems. Better Place sees this as one option. Another is metering that enables direct communication from the EVSE or the associated EV to a centralized network operations center. That center would aggregate and orchestrate all or a percentage of the EVSE within a utility service territory and provide EV customer services and communication, including communications from the centralized network operations center to the utility. From a policy perspective, Better Place recommends that the Commission work with the IOUs to enable the flexibility for third party meter ownership when the metering device is located inside the EVSE and the associated true-up functionality.

While third party operators should be able to operate in the context of advanced metering infrastructure networks, an added value of third party service providers is that they are not dependent on the presence smart metering networks and can therefore operate across various regions and utilities. A well-designed network operations center, which includes aggregation, orchestration, customer service and communication features, is capable of essentially replicating the advantages of the EV communication and control component of the smart grid.

With respect to EVSE installation, which is additional to the cost of the EVSE, any required electrical upgrades and thus the associated cost will depend on the specific parameters (existing electrical service, panel size, desired EVSE installation location, etc) of each individual residential installation. As discussed in response to Question 5, there are a number of options to address both the installation and direct EVSE cost.

4. What policies should the Commission adopt to encourage competition and innovation in the market for residential infrastructure development for PHEV and BEVs?

5. Should the Commission consider allowing utilities to invest in and rate-base residential electric vehicle charging in order to encourage and support early adoption of PHEVs and BEVs? If so, what components of the infrastructure should the utility be authorized to invest in, e.g., wiring upgrades, EVSE? Should utility investment continue once the market matures? What impact might this have on the competitive marketplace relating to electric vehicle charging infrastructure by non-utility entities?

6. If a utility proposes to own customer-premises EVSE's, how will the Commission ensure that near-term EVSE and metering capital investments are interoperable with future generations of PHEV and BEV technology?

Better Place Response to Questions 4 through 6:

The Commission's leadership in this proceeding will affect competition and innovation not just in California, but in the US and globally. As such, the Commission has an obligation to carefully consider the implications of its decisions, including rules for metering arrangements, infrastructure investment and ownership, and tariff structures, on competitive market dynamics.

As noted above in response to Questions 1 through 3, allowing sub-metering is an important step in ensuring that independent service providers can participate in the market. Facilitating a variety of submetering arrangements, including secure metering within the EVSE, will significantly reduce the cost and hassle of infrastructure deployment to customers, as well as allowing third party participants to developed bundled service options for EV customers. Ultimately, a submetering option will preserve consumer choice by allowing a variety of billing and service alternatives to become available to EV drivers. Submetering may require an additional "true-up" process for purposes of EV electricity usage and billing. However, this is imminently achievable as utilities and other market participants develop capabilities to support EV charging management and billing.

The issue of infrastructure investment, ownership and access is central to competition and innovation in the EV market. Given the early stages of this industry, there may not be a single optimal arrangement that can be determined today. Indeed, it appears clear that there are several possible infrastructure investment scenarios. Below we describe two options that address the need for early infrastructure deployment while ensuring a competitive market.

In the first scenario, the Commission (or another public entity) establishes an EV infrastructure fund to support early market development. The fund provides an EVSE voucher that flows through to the entity that purchases and installs the EVSE. This arrangement enables a variety of EVSE ownership structures, such as ownership by individual homeowners, commercial entities, cities, service providers, etc. Particularly at

the outset of EV adoption, flexibility is needed to support infrastructure deployment where necessary and invite interested entities to participate in supporting early adopters. The voucher would offset a share of the purchase and installation cost of an EVSE, and could be coupled with additional federal tax credits or other incentives. Another benefit of this arrangement is it could apply equally across utility service territories. There are a number of different ways to fund a voucher system. For example, a mechanism that is being leveraged successfully is the public goods charge used to provide rebates for energy efficient appliance purchases.

In a second scenario, utilities would be allowed to rate-base EVSE infrastructure as a means of spreading the cost of deploying publicly available infrastructure in a particular utility territory. While this approach may be effective in defraying infrastructure costs to individual entities, it would deter private investment in infrastructure and may effectively exclude third party ownership and access to EVSE infrastructure. Therefore, if a utility program is authorized, it would be critical for the Commission to set clear requirements and guidelines that provide third party service providers access to and the ability to operate on top of utility-deployed EVSE infrastructure. This requirement is essential to enabling competition and ensuring continuous EV charging services can exist across utility territories and integrated with areas outside IOU territory.

Finally, the issue of an appropriate time horizon authorizing a rate-basing, voucher system or other funding option will depend largely on the rate of EV adoption and the extent to which independent third parties are active participants in provisioning of EV infrastructure and services. While it will be necessary to determine a reasonable market maturity point for sunsetting funding options, we recommend the Commission prioritize developing policies that will encourage private investment to flow toward infrastructure deployment alongside public dollars over a sustained period of time.

7. What approaches are there to provide PHEV and BEV charging for owners who do not have regular access to a garage for residential recharging (including single family dwellings and multiple dwelling units (MDUs) like apartments, condominiums, and duplexes)? What regulatory issues does the Commission need to address relative to infrastructure for such residents?

Third party EV service providers may be best positioned to address the needs of MDU residents. Given the complexity of identifying the responsible party for EVSE ownership, maintenance, ongoing electrical service, liability, etc in an MDU setting, service providers would offer a streamlined solution for drivers and their property owners that avoids significant capital outlays and hassle. A service provider would accept the responsibility of infrastructure deployment and maintenance and provide access to charging for MDU residents on an as-needed basis. Additionally, through a service provider MDU residents would gain access to additional public and commercial charging locations.

To enable this option, the Commission should set policies that would encourage third parties to take on the responsibility of owning, installing and operating the charging infrastructure. These policies include sub-metering arrangements, as discussed in Questions 1 through 3, EVSE deployment incentives as discussed in Question 5, and streamlined permitting. One option that may assist in MDU deployment is developing an "EV ready" permitting program in coordination with cities and municipalities that would allow property owners one-stop access to pre-approve their property for EVSE infrastructure deployment. A property owner could effectively "sign up" their property for EVSE deployment through one process, and hand off installation, management, etc to qualified third parties.

More generally, any incentives provided to residential customers should likewise be offered to apartments, condominiums, and duplexes. However, given the split-incentives challenge in encouraging owners of MDUs to take action on behalf of temporary residents, the Commission may consider specialized incentives and requirements to encourage a variety of parties, such as landlords, condominium associations or building management companies to deploy charging options for their residents.

This is another instance where the best infrastructure funding option would be a voucher or rebate for purchase and installation of EVSE as a means of encouraging infrastructure deployment for entities other than single-family homeowners.

8. How can the Commission, in coordination with utilities, relevant state agencies, federal authorities, local governments, and other entities, streamline EVSE permitting, installation, and approval processes from the time of PHEV and BEV purchase to EVSE activation? What jurisdictional barriers should be

assessed to achieve a streamlined permitting, installation, and activation process for residential EVSE?

As discussed above in our responses to Questions 1 through 3, the Commission should establish policies that facilitate the option of third party metering equipment ownership generally, and in particular submetering equipment located in the EVSE. Not only does a submeter in the EVSE reduce the overall installation costs but also removes the need for a separate utility visit to install a separate meter. This action has significant impact on both overall EVSE installation cost and the EVSE purchase to operation cycle time.

In addition, the Commission should work with the IOUs, cities, NGOs and other stakeholders (particularly with the Silicon Valley Leadership Group Climate Compact) to streamline the EVSE installation process. At present, we see several options for accomplishing this, including a city-by-city model ordinance, replicable best-practices recommendations, a regional permitting and inspection process, etc. To the extent that the IOUs are authorized to be involved in the installation process, the Commission should consider an IOU "carrot and stick" program that sets baseline requirements for approvals, fees and timing toward a streamlined process for consumers and third parties to install EVSE infrastructure. Such a program would help ensure the cost and hassle of EVSE installation does not inhibit EV adoption and infrastructure deployment.

Given that the EVSE is essentially a large appliance, we envision limited utility involvement in the installation over the long term. The future of EVSE deployment could be as easy as a self-initiated EVSE installation process (akin to installing a new software or hardware on a computer), whereby on the first connection to the grid, the EVSE would automatically announce its presence, be added and aggregated into the EV network and seamlessly communicate with the utility, third party EV service provider or both. For residences with the necessary 220v wiring and outlet in place, the EV driver would simply plug in the EVSE, which would automatically log into the existing utility or third party network. This could be enabled through a coordinated program among relevant stakeholders (e.g. utilities, Commission, municipalities, etc) that provides certification or pre-approval of EVSEs and EVSE installer (e.g. electricians). This approach would

significantly reduce EVSE installation time and cost, and ensure the installation process does not inhibit EV adoption.

Commercial and Public Charging Infrastructure and Policy Questions

9. How should electricity used for PHEVs and BEVs be metered at commercial and public charging facilities?

Multiple metering options may be viable depending on who is paying for the electricity, the number of EVSE, etc. For example, in the case of a public parking lot with multiple EVSE operated by a third party EV service provider, the billing meter could be a main meter serving all of the EVSE. In addition to the main meter, there would also be a submeter in each EVSE to track electricity use on a per vehicle basis.

10. Who should pay for commercial and public meters, EVSE, and related upgrades?

In addition to the funding options described above we provide in response to Questions 4 through 6, we believe that third party EV service providers can play a key role in deploying and providing access to public and commercial charging infrastructure. Given the dual societal and commercial interest in creating widely accessible charging networks, we believe public incentives will be met with significant private investment, which will help to minimize the overall outlay of public and rate-payers dollars. Ultimately, California residents will be best served by policies and incentives that enable and catalyze deployment of private capital toward infrastructure deployment.

11. How should the Commission ensure that commercial and public charging facilities are cost-effective, openly-accessible, and interoperable with a Smart Grid system?

With regard to interoperability, we anticipate the on-going standard setting efforts by the National Institute of Standards and Technology (as well as other standard-setting bodies identified in Question 17) to address compatibility between EV charging and Smart Grid systems. Additionally, a number of industry stakeholders, including Better Place, are collaborating to ensure drivers can access charging infrastructure across providers.

With respect to cost-effectiveness, market competition and the participation of third party service providers will be the primary factor in bringing down the cost of EV

ownership and use. A competitive market will not only minimize and spread the cost of infrastructure deployment, but it will also provide EV drivers with access to a number of charging service options, including innovative services that are specifically designed to make EVs affordable and convenient.

12. Are additional building codes needed for residential, commercial and public charging facilities to supply sufficient electrical services to PHEVs and BEVs? What role, if any, can the Commission play in this regard?

For new construction, the Commission should work with other interested parties to develop building code requirements and specifications for the installation of EV infrastructure. The Commission should work with the California Energy Commission, Green Building Council LEED, Build it Green and others to develop codes for EVSE. Models for how to approach integration of EVSE with new housing already exist. For example, the City of Vancouver now requires that all new condominiums provide 20% of their parking stalls with charging capabilities. For existing buildings, Better Place recommends the Commission explore incentives for EVSE installation.

13. What policies should the Commission adopt to facilitate competition and innovation in the commercial and public infrastructure market?

As discussed in the executive summary and in the response to Questions 4 through 6, the Commission can play a key role in ensuring innovation and competition in the EV infrastructure market by developing policies that:

- Affirm the ability of third party service providers that align with the Commission's EV management objectives to operate independently
- Ensure that public, rate-payer or other funding mechanisms for infrastructure deployment are designed to invite private investment and competition
- Develop policies that streamline and enable infrastructure deployment, such as permitting, certification and incentives
- Encourage EV benefits to achieve California's energy and environmental goals through tariffs and policies that encourage EV charge management

Above all, it is critical for the Commission to provide regulatory clarity for EV service providers. As we discussed in response to Question 15, any ambiguity regarding

the Commission's authority to regulate third-party service providers will be viewed as risk by potential investors and may deter necessary infrastructure investment.

14. What issues need to be addressed related to the relationship between regulated electricity utilities and third-party electric vehicle service providers that are proposing and/or implementing charging services at residential, commercial and public locations?

Given the dynamic nature of the EV infrastructure market and the emergence of new business models, there will be multiple touch points in the relationship between a utility and a third party service provider that will depend on both the utility's approach to EV charging and the service provider's business model.

While recognizing the need to facilitate interaction between utilities and third party EV service providers, the Commission should first and foremost ensure a competitive market in which third party service providers can operate, and eliminate any regulatory ambiguity in a timely manner so that private investment in infrastructure continues to move forward. We have noted our position on rate-basing of EVSE infrastructure (as well as alternative infrastructure funding options) and metering arrangements in response to prior questions. Both issues are central to determining the relationship between regulated utilities and third party service providers, and we look to the Commission to implement these policies in a manner consistent with creating a competitive market that invites private investment.

An issue that should be explored further in the course of this proceeding is how to ensure alignment between utilities and third party service providers toward achieving the greatest possible societal benefits of EV adoption. It seems likely that a combination of utilities and third party service providers will ultimately serve EV customers, who will be able to chose the most cost-effective and convenient option for their lifestyle needs. In this context, third party service provider will offer valuable EV network management capabilities to minimize negative grid impacts and maximize beneficial grid services, such as renewables harvesting. Additionally, third party service providers will play a valuable role in providing services and coordinating EV management across utility territories. The Commission's policies should recognize the value of third party service providers that actively manage the impact and value of EVs to the grid, and consider guidelines and policies that will help ensure that regulated utilities align with third parties

to the extent needed to realize the benefits of EV adoption. While this will be partly addressed by tariff structures, additional guidelines may be needed to ensure a consistent platform of collaboration between utilities and third party service providers within and across service territories.

The Commission should also consider aligning EV drivers with available smart charging management options to prevent and minimize any negative grid impacts, and to assign accountability for EV charging management. For example, EV drivers could be required to enroll in a smart charging management service (either third party or utility) upon purchase of the vehicle. Ensuring that most (if not all) EV drivers are part of a managed network from day one will make it easier to realize the benefits of EV adoption by enabling centralized network management, coordination among a manageable number of market participants and significantly reduced burden on individual drivers.

Legal Issues Related to the Ownership and Operation of Charging Infrastructure

15. Under what circumstances are third-party electric vehicle service providers public utilities and/or electrical corporations pursuant to Pub. Util. Code § 216 and Pub. Util. Code § 218? What implications do Pub. Util. Code § 216 and Pub. Util. Code § 218 have on the competitiveness of the third-party electric vehicle service provider market? If the Commission has jurisdiction over third-party electric vehicle service providers, what is the appropriate level of regulatory oversight?

Better Place believes third party service providers are not regulated under current law. However, it is absolutely essential that any potential jurisdictional issues be addressed sooner rather than later. As EVs are coming to market in volume in the 2010-2011 timeframe, any ambiguity regarding the Commission's authority to regulate third-party providers will be viewed as risk by potential investors and will hamper infrastructure deployment in this emerging market. Better Place encourages the Commission to resolve any jurisdictional questions squarely and at the earliest possible opportunity. The Commission could accomplish this by inviting briefing of the issues and issuing a clarification that third party EV service providers do not fall into the purview of sections 216 and/or 218 of the California Public Utilities Code as regulated entities.

16. What statutory changes, if any, should the Commission propose to the legislature to encourage innovation and competition in the charging infrastructure market?

If the Commission concludes that the provision by third-party providers of charging services could result in Commission regulation or that there is any ambiguity regarding such providers' exemption from regulation under sections 216 and 218 of the Public Utilities Code, the Commission should support legislation clarifying this exemption. There is precedent the Commission could follow from other states. For example, in 2008 the Minnesota Legislature passed H.F. No. 1250, which proposed a number of measures aimed at facilitating innovation and competition in the charging infrastructure market, including language specifically exempting providers of charging services from regulation as a public utility.

Codes and Standards

17. Please identify current and pending Society of Automotive Engineers vehicle design and interface technical requirements, the Underwriters Laboratory listed components and systems, and the National Electric Code, California Electric Code, and California Building Code Regulations that govern the installation, operation, and maintenance of charging infrastructure at the residential, commercial, and public charging EVSE. How does the timeframe for each code and standard adoption impact current and future vehicle and EVSE products? What role, if any, can the Commission play in improving or encouraging this process?

We anticipate the Electric Power Research Institute (EPRI) and other standards organizations will lead the standard setting process. It is not clear whether there is a definitive role for the Commission in setting EV and EVSE related standards.

18. How important is consumer choice as to Charging Levels ((Level 1, 2 or DC)? If important, how may the Commission best balance driver and grid benefits for all residential, commercial, and public charging infrastructure?

Provided the EV has a J1772 connector, Level 2 is the most viable charging option. However, there are situations in which Level 1 charging (again via a J1772 connector) may be appropriate. The optimal infrastructure vision includes one EVSE/charge point per EV for nighttime charging plus some smaller ratio for workplace, commercial and public charging. This should be combined with a much smaller number

of battery switch stations (BSS) to enable the endless range equivalent to the current gasoline paradigm. Battery charging in both the EVSE and the BSS should be aggregated and controlled via smart charging algorithms coupled combined with the aggregation and orchestration of a series of EVSEs and the associated EVs plus customer service/communication to minimize impacts to the electrical grid, including the potential to "harvest" intermittent renewable energy and provide ancillary services while meeting the needs of the EV driver.

19. What role can the Commission play to ensure EVSE compatibility with a unified EVSE conductive charge coupler standard (J1772) for all residential, commercial, and public charging EVSE within regulated utility service territories? What role can the Commission play to ensure that EVSE be forward-compatible with emerging Society of Automotive Engineers loads, messages, and programs communication standards (J2293, J2836, and J2847)?

As noted in response to Question 17, Better Place anticipates that EPRI and other standards organizations will lead the standard setting process. It is not clear whether there is a definitive role for the Commission in setting EV and EVSE related standards.

Electrical System Impacts Questions

20. What are the potential electrical distribution system impacts associated with geographically concentrated PHEV and BEV charging in the near-term? How will utilities anticipate these impacts and make capital investments needed to ensure service network reliability? How should the utility capital investments be paid for and recovered?

As discussed in response to Question 18, distribution system impacts will be most effectively addressed in the near-term by facilitating use of smart charging through aggregation and orchestration of a series of EVSEs and the associated EVs (on the order of tens of thousands) together with customer service/communication playing a key role in both reducing any negative impacts to the distribution grid and in optimizing the utility distribution assets. It is important to note that while smart charging can ensure that multiple EVs on a distribution feeder line do not charge simultaneously, grid impacts are also minimized through customer communication (via text, cell, email etc) reminding the EV driver to plug the vehicle in on a daily basis when the EV is parked at home. That is, if three EVs on the same feeder circuit are driven ~30 miles daily, the charge time at 3kW

is ~3 hours per vehicle, and staggering charging over the course of an evening is easy. However, if customers miss a night (because the no one reminded them to plug the EV in) and have to charge the equivalent of 60 miles or for 6 hours per vehicle on the next night, staggering charging (hence minimizing impact on the grid) is much more difficult. In this context, third party service providers will offer a valuable network management service through network aggregation and orchestration, smart charging optimization and customer service/communication.

21. What commercial and public infrastructure options are most likely to be deployed, e.g., Level 1 charging facilities, Level 2 charging facilities, "service station" model DC charging facilities, and/or battery swap stations? Should the Commission adopt policies to favor certain charging options taking into consideration cost-effectiveness, grid benefits, ability to meet PHEV and BEV driver charging demand, and ability to reduce BEV driver "range anxiety"?

Better Place fully supports the Commission in accelerating and incentivizing the deployment of Level 2 EVSE infrastructure. However, Better Place also believes that the market is still evolving and it is premature to pick "winners and losers" among EV infrastructure options at this time beyond incentivizing Level 2 EVSE.

22. What potential load shape impacts associated with PHEV and BEV charging should utilities anticipate in the near-term? How can time variant pricing, demand response programs, and advanced meters mitigate load spikes associated with uncontrolled, simultaneous charging found to occur at specific times of day, for example, when drivers arrive home from work? How should the Commission address potential load spikes if a large number of customers begin charging simultaneously when lower electricity rates apply under TOU rate schedules?

In part as discussed in response to Question 20, we see a technological solution to the potential for load spikes due to large numbers of EV drivers initiating charging simultaneously once electric rates drop under a TOU rate schedule. Because of this, we encourage the Commission to consider a rate structure for EV service providers that perform smart charging coupled with the aggregation and orchestration of a series of EVSEs and the associated EVs plus customer service/ communication. Not only will this significantly reduce the risk of load spikes but also be a much more efficient way of achieving IOU Renewable Portfolio Standards. Just as the EV service provider minimizes the negative impacts to the transmission and distribution system, it can also time charging to correlate to intermittent renewable generation like wind power.

23. In the long term, what are the benefits and drawbacks on electric generation and transmission associated with projected PHEV and BEV market growth in California?

As discussed in response to Questions 18, 20 and 22, EV service providers will play a central role in mitigating the effects of EV adoption on generation and transmission through smart charging and network management. In addition, aggregation and orchestration of EVs across regions will provide a cost-effective way to balance the increasing share of renewables, thereby enhancing asset utilization of existing and planned resources and avoiding the need for new generation to power EVs. In addition, at scale EV service providers will be able to offer demand response and ancillary services, such as frequency regulation, utilizing the EV network. As noted in response to Question 14, the Commission should consider requiring drivers to enroll in a managed service (utility or third party) to ensure the benefits of EV adoption are realized to the maximum extent possible.

Tariff-Related Questions

24. Should the Commission authorize a default time variant electric vehicle rate applicable to all residential electric vehicle tariff customers? What changes, if any, to the rate protection provisions of AB-1X[1] are needed to authorize a default time variant electric vehicle rate applicable to residential customers?

25. What rates should apply to customers charging their PHEVs or BEVs at commercial, industrial, and public charging facilities that are in the same service territory as their home utility?

26. What rates should apply to third-party operators of commercial charging facilities? Should the Commission establish new rates for commercial charging facilities taking into account the costs and benefits created by these entities?

Better Place Response to Questions 24 through 26:

Better Place recognizes tariff structure as a critical issue in this proceeding. Designing an appropriate rate structure that results in the maximum possible grid benefits of EV adoption is perhaps one of the most important challenges for the Commission to address. With regard to third party service providers, the Commission should establish a rate that reflect the value of service providers to the grid, including the value of smart

[1] Assembly Bill 1X, (Stats.2001-2002, 1st Ex. Sess., c. 4 (A.B.1), § 3, eff. Feb. 1, 2001), an act to amend Section 366.5 of, and to add Section 360.5 to, and to repeal Section 355.1 of, the Public Utilities Code, and to add Division 27 (commencing with Section 80000) to the Water Code, relating to electric power.

charging, network aggregation and orchestration, network enabled grid services, such as renewables integration and ancillary services, and grid-related benefits. The value of third party service providers will extend to California residents and rate-payers, and the Commission should set consistent rate structures across utility territories that recognize and reward the value of such services in achieving the desirable benefits of EV adoption.

With regard to dynamic pricing and other possible rate-structures for residential, commercial and public charging, we suggest that given the complexity and importance of this issue, the Commission begin by exploring objectives and desired outcomes of the rate structure changes. For example, the tariff structure should generally support and encourage EV usage, provide rate incentives for off-peak charging, integrate easily with on-site generation, and also reward EV enabled grid-services, such as demand response and frequency regulation. Other goals may include consistency between utilities, standardization of rates, terms and conditions, and facilitating interface with other existing programs, such as energy efficiency and demand response.

Once objectives are established and prioritized, the Commission should look at existing EV tariffs – both here in California and elsewhere – and examine whether they are a good models for meeting the Commission's objectives. For example, the Commission may want to examine the relative merits of dual metering versus submetering. Which approach works best for customers? Which approach is most flexible? Which serves the Commission's goals? Based on its initial examination of the California tariffs and its experience in the industry, Better Place believes the Commission should probably move toward establishing more cost-effective alternatives to the rigid dual meter model. Customers might best be served by multiple options for metering the household and EV loads.

Once the Commission has established objectives and examined alternatives, it will be in a better position to look at the final question – how should we specifically structure tariffs for each category of end-user? Better Place looks forward to working with Commission on developing residential and commercial/industrial tariffs that will encourage customer participation at the same time that they minimize impact on the grid.

27. How should a customer pay when charging a PHEV or BEV in another utility's service territory? Please evaluate options set forth below, or suggest alternative approaches:

a. A customer pays a posted price for electricity to a specific electric charging provider at the time of the transaction, similar to how gasoline is purchased.

b. The second utility bills the customer's home utility and the home utility adds the electric vehicle electricity cost to the customers' energy bill. A third-party clearing house could facilitate these transactions.

d. A customer has a relationship with a third party charging provider and pays that third party wherever the customer charges.

e. A customer has a choice of all or some of the above options.

While there are a number of possible billing options, a service-based solution, option (d), that makes EV ownership cost-effective and convenient, and eliminates the hassle of billing across utilities for individual customers, will ultimately be the most viable payment method for mass adoption. In option (d), the third party service provider would work with other market participants and utilities on billing and payment for electricity. A third-party clearinghouse could play a role in facilitating these transactions. We encourage the Commission to enable flexible billing and submetering arrangements that would allow consumers to chose bundled service options that minimize the overall cost of EV ownership and use.

28. What types of costs and benefits are generated by electric vehicle adoption on different aspects of the electricity system, including transmission, distribution and procurement costs?

See response to Questions 18, 20, 22 and 23. In summary, "fueling" EVs via smart charging algorithms combined with the aggregation and orchestration of thousands of EVSEs and the associated EVs plus customer service/communication (the EV network) could provide significant benefits, not only for the customer, the IOU, and the environment, but also benefits for our trade balance, geopolitics etc. However, until the EVs arrive and reach some critical mass combined with the EVSE and greater network, it is difficult to accurately predict the associated benefits and costs.

29. Should the electric vehicle rate structure be designed to align rates with the system costs and benefits of PHEVs and BEVs, and if so, how? Should the Commission assign additional costs and benefits attributable to PHEVs and BEVs

to specified electric vehicle rate classes or socialize the costs and benefits attributable to PHEVs and BEVs to all customer classes? Should the PHEV and BEV rate classes bear existing rate component costs?

As the Commission knows, large numbers of EVs, if properly managed, have the potential for significant benefit (economic, environmental, etc) to the electrical grid and society as a whole. Given these benefits, incentives should be provided to accelerate the mass adoption of EVs. And, if all or some portion of the ratepayers have provided these incentives, then the benefits logically belong to those ratepayers. The Commission's objective should be to accelerate and enable these benefits at the lowest cost to the ratepayers.

30. Should the electric vehicle rates reflect the marginal cost of service, particularly for off-peak electricity charging and, if so, how?

This is a complex question, particularly given California's goal of a 33% Renewable Portfolio Standard and the role EVs can play in providing storage and balancing the grid. Better Place encourages the Commission to engage the California Independent System Operator in addressing this issue. Conceptually, we see the potential for some form of dynamic pricing structure for electricity used as an EV "fuel."

31. Should rate incentives be created for electric vehicles to be paired with distributed generation incentive programs, such as the California Solar Initiative (CSI) and Self-Generation Incentive Program? Should rate incentives be created for electric vehicles to be paired with demand response programs? How should these incentive programs be incorporated into electric vehicle rate structures? Who should pay for such incentives?

Given the existing complexity of the above programs, and the fact that they are already established under a separate mandate, the Commission may need to treat them separately from the EV OIR. This is a question that needs further consideration as this proceeding progresses. In any event, the Commission should ensure that customers participating in programs that complement the use of EVs are encouraged to maximize the benefit of both programs and coordinate their electric usage in a way that optimizes the use of the system and incentives to the ratepayer.

32. Under what circumstances can utilities and third parties aggregate PHEV and BEV services to participate in California Independent System Operator

(CAISO) ancillary service markets? What policies, if any, does the Commission need to consider in this regard?

This is another complex question, particularly given California's goal of a 33% Renewable Portfolio Standard. There appear to be multiple scenarios wherein third party service providers might participate in the ancillary services market or merely provide these services to the CAISO. Again, the objective should be initially driving the mass adoption of EVs and ensuring the future net benefits accrue to the applicable ratepayer set.

Low Carbon Fuel Standard

33. What recommendations, if any, should the Commission make to the California Air Resources Board regarding the treatment of electricity under the Low Carbon Fuel Standard?

At present, the LCFS carbon credit ownership associated with the use of "fuel" electricity as currently drafted promotes the open market and competition to find the lowest cost fuel. We encourage the Commission to support the position of the California Air Resources Board in this proceeding.

34. If a utility generates and sells credits under the Low Carbon Fuel Standard regulation due to customers' use of electricity as a transportation fuel, what should the utilities do with the revenue from the credits?

Revenue from LCFS carbon credit sales belongs to the applicable ratepayer group. That is, if all or some portion of the ratepayers have provided incentives to accelerate the mass adoption of EVs, then the revenues logically belong to them. However, in the beginning years of EV deployment in California, we encourage the Commission to use these funds to accelerate the mass EV adoption be it in the form of tariffs, vouchers or other incentive program.

Programs and Incentives

35. Should utilities and/or government provide low-interest finance incentive programs for residential and commercial EVSE? Should these programs incorporate tax incentives available through the American Recovery and Reinvestment Act (ARRA) of 2009?

Given the known multiple benefits of EVs, we support and encourage incentive programs that accelerate their mass adoption. Given the dual societal and commercial benefits of EV adoption and infrastructure deployment, it is appropriate to deploy public capital toward infrastructure deployment in a manner that also encourages private investment over a sustained period of time.

In evaluating incentives, it is also important to analyze the entire incentive stream. For example, it may be more cost effective to provide a voucher to an individual or third party for the purchase and installation of the EVSE understanding that they will also be able to obtain a tax credit under ARRA versus the option of rate-basing the EVSE.

36. Should utilities and/or government provide incentives that encourage customers to purchase higher-efficiency electric vehicles rather than less efficient electric vehicles, and if so, how should the incentives be structured?

We encourage the Commission to develop incentives that are available over a long enough time horizon to accelerate the mass adoption of EVs.

37. How should the Commission ensure that any policies developed related to electric vehicles provide a level playing field for transportation fuels and technologies?

Because the Commission only regulates natural gas and electricity, we see this as an inappropriate forum to address this question. However, given the known benefits of electrifying the transportation sector, the Commission should rapidly act in a reasonable manner to accelerate the mass adoption of EVs.

38. How could electric vehicle adoption impact other Commission policies and initiatives including the Renewable Portfolio Standard, the Long-Term Energy Efficiency Strategic Plan, energy efficiency goals, and zero net energy homes goals?

We see EV mass adoption will complement the above policies and initiatives. For example, regarding the Renewable Portfolio Standard, EVs coupled to an EV network have the ability to harvest wind power.

Education and Outreach

39. What entities and programs best facilitate customer outreach and education regarding convenient and timely EVSE installation options and customer tariff education to ensure awareness of off-peak versus on-peak charging costs?

Better Place envisions a broad range of public and private stakeholders that will contribute to consumer education about EV ownership, charging options and optimal charging behavior. Among these entities, third party service providers will have the most motivation to educate customers about EV purchasing, use and charging management, as it is in the interest of third party service providers to catalyze EV adoption and encourage appropriate charging behavior by their customers. For public stakeholders, we suggest the Commission encourage efforts to communicate the benefits of EV adoption as part of the state's broader climate and energy goals. The Commission could consider dedicating funds for educational outreach.

Scope

40. Should the Commission consider natural gas vehicles as part of this rulemaking, or consider natural gas vehicle issues through utility filed Application(s) and/or Advice Letter(s)? What are the near-term tariff, infrastructure, incentive programs or other issues that the Commission should address with respect to natural gas vehicles?

Given the complexity and breadth of issues already raised in this proceeding, Better Place recommends the Commission maintain the stated focus on electric vehicles and address issues relevant to natural-gas vehicles outside of this proceeding.

41. Should the Commission consider medium-duty electric vehicles, heavy-duty electric vehicles, and off-road electric vehicles as part of this rulemaking? If so, what issues specific to these vehicles should the Commission consider?

Given the complexity and breadth of issues already raised in this proceeding, Better Place recommends the Commissions focus on light duty on road electric vehicles. However, in general, medium and heavy duty plus off road electric vehicles should be given appropriate/proportional incentives as compared to light duty EVs.

IV. Conclusion

Better Place appreciates the opportunity to comment on these important questions. We look forward to working with the Commission and other stakeholders to create a strong foundation for EV adoption in California.

Dated: October 5, 2009

Respectfully submitted,

By: _____/s/_____

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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 as to those matters I believe them to be true.

I declare under penalty of perjury that the forgoing is true and correct.

Executed on October 5, 2009 at Palo Alto, California.

/s/

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Palo Alto, CA 94304

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 October 6, 2009, I served the attached *OPENING COMMENTS OF BETTER PLACE* 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 October 6, 2009, at Sacramento, California.

/s/
Karen A. Mitchell

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