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April 20, 2012

Alternative and Renewable Fuel and Vehicle Technology Program  
 California Energy Commission  
 1516 Ninth Street  
 Sacramento, CA 95814

Re: Docket Number 11-ALT-01, 2012-2013 Investment Plan Comments

Dear Sir/Madam,

Thank you for the opportunity to provide input on the current update of the draft investment plan created by the California Energy Commission for the Alternative and Renewable Fuel and Vehicle Technology Program in 2012-2013. We commend the thoughtful investments proposed for the future of clean transportation and economic development in California. We would like to specifically thank the Advisory Committee and CEC AB 118 staff for all of their hard work on an important program that is advancing transportation, helping the state achieve greenhouse gas reduction goals, and implementing Governor Brown's Executive Order to help bring 1.5 Million Zero-Emission Vehicles onto California's Roads,

Below we outline our key suggestions to help truly transform advanced transportation to ultra-low carbon options for California consumers.

To help ensure widespread adoption of zero-emissions transportation, we continue to encourage the state to fully consider current consumer behavior and perceptions, encourage economically sustainable approaches, and allow for innovative technologies that can help overcome the two main obstacles for mass deployment of EV's in California—perceived and real range issues and high upfront costs.

As we stated in our March 2012 comments, a key element to a more effective investment plan is funding for competitive and innovative solutions from around the world, thereby attracting additional investments to California aligned with AB32 goals. These include business models and new infrastructure paradigms that solve the cost and range issues for consumers. To enable mass-adoption of electric cars, Better Place separates battery ownership from car ownership, providing mobility services that make electric cars more affordable to own and convenient to drive than traditional gas-powered cars. Better Place's ownership of the battery lowers the upfront cost to the consumer, removes critical technology risks, allows for better financing, and integrates new technology more rapidly. Renault offers battery leases for its electric cars worldwide, China State Grid has deployed and is operating battery switch stations with plans to build more than 2,000 stations across the country, and Tesla has endorsed the importance of a switchable battery. We respectfully request that the final investment plan and solicitations encourage market-transforming solutions such as battery switch and innovative business models such as electric mobility-as-a-service.

Following are specific recommendations we feel will increase the impact of the investment plan.

**Alternative Fuel Infrastructure**

The staff report requested recommendations on fast-charging infrastructure. As we stated in our previous comments, instead of specifying fast-charging equipment in a solicitation, Better Place recommends solicitations that encourage the desired performance-based outcome: rapid range extension through systems that allow for a driving experience competitive with gasoline cars, while maximizing the benefits to the electrical grid. The solicitation should allow for "instant charge" battery switching, alongside fast-charging. We recommend language that permits battery separation, encourages managed charging and requires range extension. Battery switch stations coupled with smart charging infrastructure serve transport needs and can simultaneously be operated as a "virtual power plant" and electricity storage resource to the grid.



### **Alternative Fuel and Advanced Technology Vehicles**

The staff report carefully examines the barriers to adoption of electric cars, and Better Place continues to agree that upfront cost and infrastructure are key barriers. As we have stated in previous comments, when we take the consumers perspective, we believe driving range is the key barrier to mass adoption of EV's. We respectfully recommend modifying solicitation language to encourage vehicles that can achieve more zero-emission miles, regardless of battery capacity. Battery switching enables instant charge with today's battery technology, allowing even high-mileage drivers to convert to EV's. Incentives should encourage these high-mileage drivers because converting them will have a larger impact on the goals of AB 118. Incentives should be directed at promoting investment in networked, controllable electric car charging infrastructure to capture the dual-use potential of networked cars as a resource for better renewable energy adoption and improved grid reliability.

### **Emerging Opportunities**

Better Place strongly supports funding for innovative technologies and strongly recommends that the Energy Commission consider increasing this \$3.5 million category to at least \$6 million. We also respectfully request that this category be allowed to fund comprehensive electric vehicle projects beyond the proof of concept phase (e.g. having proof points beyond California markets), address the key barriers of entry for mass market electric vehicle adoption (range, cost, convenience), have federal government cost-share, offer complete consumer-focused offerings and zero emission vehicle technologies that have the potential to replace high-mileage vehicles with zero emission vehicles.

These projects should represent comparable replacements for the highest polluting driving segments, by providing comparable performance on refueling time, battery life/warranty, vehicle residual value, grid impact, and vehicle purchase price, all with zero tailpipe emissions.

For the first time in a century, drivers have alternatives to gasoline cars, without compromise. Nation-wide deployments of battery switch infrastructure in Israel and Denmark have proven that electric cars are already a viable option for consumers that offer a real replacement for gas-powered vehicles. With retail gas prices 50% lower than in Europe, California needs to partner with private investment to lower the cost of capital to attract new business models that make it possible to transform transportation, improve air quality, reduce petroleum consumption, and curb greenhouse gas emissions.

Sincerely,

Jason Wolf  
Vice President North America  
Better Place