

April 23, 2012

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

<b>DOCKET</b>	
<b>11-ALT-1</b>	
DATE	APR 23 2012
RECD.	APR 24 2012

Re: Docket Number 11-ALT-01, 2012-2013 Investment Plan (Addendum to comments submitted on 4.20.12)

Dear Sir/Madam,

We are submitting an addendum to the formal comments we provided on April 20, 2012 (attachment A) regarding 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.

**Emerging Opportunities: Funding Request**

As we stated in our April 20, 2012 letter, we strongly support funding for innovative technologies and strongly recommend that the Energy Commission consider increasing this \$3.5 million category to at least \$6 million. Specifically, we respectfully request the Energy Commission to consider investing \$6 million from the emerging opportunities category towards the Bay Area Electric Vehicle Taxi program which we propose to support:

- Range-extended zero-emission vehicle development and procurement
- Network deployment, integration, and operations
- Consumer and stakeholder education about electric cars
- Project management

**Bay Area Electric Vehicle Taxi Program Background**

In May 2010, the Bay Area Metropolitan Transportation Commission issued a \$31 million innovative climate grants solicitation to support high-impact, innovative projects with the greatest potential to reduce greenhouse gas emissions that could be replicated on a larger-scale around the region. In October of 2010, MTC awarded Better Place \$6 million from the U.S Department of Transportation’s Congestion Mitigation and Air Quality Improvement (CMAQ) program towards a regional EV taxi program in partnership with the cities of San Francisco and San Jose, as well as other local and national partners. These grant funds are administered through our public agency partner, the City and County of San Francisco and will be used towards funding our Bay Area battery switch station infrastructure. Also in 2010, the Bay Area Air Quality Management District awarded \$450,000 from its Transportation Fund for Clean Air Regional Program Manager funds towards our first battery switch station in downtown San Francisco. In addition, the project has received a \$100,000 grant from the U.S. Department of Energy’s Renewable Energy’s Vehicle Technologies Program towards funding for one vehicle for the program. These funds are administered by San Francisco Environment, a department of the City and County of San Francisco.

Better Place is investing upwards of \$24.5 million in private funds in the Bay Area EV taxi program. As we stated in our April 20, 2012 letter, we strongly believe that projects funded from the emerging opportunities category should support comprehensive electric vehicle projects beyond the proof of concept phase, that address the key barriers of entry for mass market electric vehicle adoption (range, cost, convenience), have federal government cost-share and offer complete consumer-focused technologies that have the potential to replace high-mileage vehicles with zero emission vehicles.



### **Investment for California's Clean Air Future**

The Bay Area EV Taxi program is a natural fit for funds from the emerging opportunities category. Each year, Bay Area consumers spend roughly \$12 billion on oil and more than 50% of the regions greenhouse gases come from mobile sources. As outlined in a 2010 study from RAND, dirty air costs CA \$193 million/year in hospitalization costs. Cleaning up taxi fleets will serve as the perfect proof point for electric vehicles because taxis have an annual VMT of more than 90,000 miles/year, they produce >5X more GHG's than a typical passenger car and they operate 24X7.

### **Planned Project Deployment**

During the course of our Bay Area EV Taxi program, we expect to touch over 1 million consumers in the largest North American car market, with the potential to reduce greenhouse-gas emissions by 700,000 tons annually. The program scope calls for the deployment of an EV taxi corridor between San Francisco and San Jose, including 4 switch stations and 61 battery switch-capable taxis. We have secured high-profile sites in downtown San Francisco, at San Francisco International Airport and additional sites have been identified in San Jose. This project will showcase battery switch as an "instant charge" option for unlimited range, complementing the suite of charging options necessary to support mass deployment of zero emission vehicles in California and beyond. It also demonstrates a public-private partnership for infrastructure roll out that helps California to reach its GHG reduction targets and lays the groundwork to scale this network commercially for consumers and fleets.

- Phase I: Deploy 2 Battery Switch Stations (BSS), 6 battery switch-capable cars and the related network by 2013, Operate for 2 years (to 2015)
- Phase II: Deploy additional 2 BSS and 55 battery switchable cars during period coincident with phase I operations and commercial network deployment (see next paragraph). Operate for 3 years (to 2018)
- Phase III: Operate assets until end of life (no more than 9 years from start of phase I operations)

On a parallel path, we are working to secure public and private investments to scale the switch network throughout the Bay Area and then California by 2025. We anticipate a statewide battery switch network can reduce CA oil spending by \$1 billion, attract over \$2 billion in private investment and create approximately 3,000 direct jobs in California.

In closing, we respectfully request the Energy Commission to increase the innovative technologies category to at least \$6 million in the 2012-2013 Investment Plan in order to leverage the existing federal and regional grants totaling \$6.55 million for the Bay Area EV Taxi program. These funds need to begin to be expended before the end of calendar year 2012 in order to maintain good faith and confidence with federal and regional funding agencies in our ability to execute the Bay Area EV Taxi program. In addition, our \$24.5 million private investment in this project is also at risk if we continue to experience further delays in implementing this project as these funds may be leveraged in our other global markets. This project has federal, regional, and private cost-share and has the potential to replace the highest VMT vehicles on the road today, which will enable the state to meet its ambitious climate target goals and continue its leadership role supporting innovative technological solutions to clean the air, address the climate crisis, reduce demand for petroleum-based fuels, and substantially advance transportation in California.

We thank you for your kind consideration of our recommendations.

Sincerely,

Jason Wolf  
Vice President North America  
Better Place



## ATTACHMENT A

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