October 31, 2008

James D. Boyd, Vice Chair
Karen Douglas, Commissioner
Transportation Committee
California Energy Commission
Dockets Office, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Docket No. 08-ALT-1 & AB 118 Investment Plan

Dear Mr. Boyd and Ms. Douglas,

We respectfully submit the following proposal for consideration by the California Energy Commission. Thank you for your consideration.

Sincerely,

Danielle Fugere
Regional Program Director
Friends of the Earth

Solar Fueling Stations:
Building a Zero-Emissions Transportation Future

Introduction:

Plug-in hybrid and all-electric vehicles (plug-ins) represent an important, near-term solution for reducing petroleum use and global warming pollution from vehicles. Plug-ins also represent a game-changing opportunity to create a transportation future fueled by renewable energy. Friends of the Earth is working to make this transportation option a reality by demonstrating the near-term potential for fueling our cars from solar infrastructure.

Friends of the Earth • 311 California, Suite 510, San Francisco, CA 94104
T: (415) 544-0790 F: (415) 544-0796 www.bluewaternetwork.org

Friends of the Earth • 1717 Massachusetts Ave. NW, Suite 600, Washington, D.C. 20036-2002
T: (202) 783-7400 F: (202) 783-0444 foe@foe.org www.foe.org

Proposal:

FoE proposes to launch two solar fueling station[1] network demonstration projects in early adopter regions of California -- the San Francisco Bay Area and the Los Angeles metropolitan area -- where technology leadership exists and forward-thinking government leaders are likely to be supportive of these clean technology projects. Each network will consist of 10 solar fueling stations with at least 10 spaces each, for a minimum of 200 vehicle charging units. The networks will be identified on GPS units, Google maps, and other electric vehicle charging station databases, with uniform, recognizable signage, ensuring easy access to these stations. Once in place, these networks can be expanded across the state and across the U.S.

The Opportunity:

Plug-in vehicles charged by the electric grid, especially California's relatively cleaner grid, have the benefit of substantially reducing or avoiding gasoline use, reducing greenhouse gas emissions, and saving owners money over the life of the vehicle. The benefits of plug-in vehicles fueled by the sun are even more dramatic, providing one of the most viable ways for vehicles to meet their share of long-term greenhouse gas reduction targets.

Solar carport fueling stations have the potential to power a significant number of vehicles. As an example, there are approximately 90 million parking spaces in California and 925 million in the U.S. as a whole. Each solar fueling station, which generally covers 6 parking spaces, generates approximately 18,000 kilowatt-hours of energy per year.

Given California's proven leadership in technology, efficiency, and environmental protections, a successful demonstration of solar fueling can help drive the installation of solar fueling stations across the United States.

Solar Fueling Station Benefits:

Solar fueling stations, which are visible from roads and freeways, will help make clean solar fuel a reality in people's minds. These stations, strategically placed in highly visible locations, will not only widely advertise the availability of clean solar fuel, but will also improve the marketability of plug-ins for those who have not yet purchased them—especially for those demographics most likely to buy plug-ins but who remain concerned about their ability to fuel the cars. Creating a network of solar fueling stations which are easily accessible to drivers will help provide consumers with the comfort and reliable fuel sources they seek, especially for fully-electric vehicles.

[1] Solar fueling stations consist of either carports upon which photovoltaic panels are mounted and underneath which cars park and charge or roof top solar arrays tied to parking lot charging stations. Either system can be outfitted with grid-tied electrical outlets so that electricity can be fed back to the grid or used to meet building needs if cars are not charging. Some examples of likely spots for solar fueling stations include city and county parking lots, public transportation depots, airports, company parking lots, hospitals, car-share companies, malls, theme parks, zoos, and sports arenas.

In addition to producing clean, renewable fuel and catalyzing the use of highly efficient plug-in vehicles, solar fueling stations provide other benefits.

Emission Reductions - Because cars running on electricity have no tailpipe emissions, and solar fueling stations do not emit pollutants when creating fuel, together they contribute to public health by reducing smog and particulate matter, especially in urban areas with high concentrations of vehicles.

Distributed Generation - Solar fueling stations that feed energy into the grid when not fueling cars also serve as distributed generation facilities. This distributed generation helps utilities meet their renewable energy requirements while easing strain on transmission infrastructure by producing power where it is needed, rather than at far-flung peaker plants. In the future, as we convert to a "smart" electric grid, electric vehicles plugged into solar charging stations can also help utilities by feeding stored battery power from the vehicles back to the grid, providing peak power, spinning reserves, or regulation services -- a concept often referred to as Vehicle-to-Grid (V2G).[2]

Green Jobs - The installation of solar fueling stations and the production of solar cells and other components of solar fueling stations contribute towards an emerging green economy and a growing green collar workforce.

Other Benefits - Solar carports have the added benefit of reducing the urban heat island effect by shielding asphalt parking lots from the sun, shading cars, and improving the aesthetics of parking lots. Importantly, by using already developed land (i.e., parking lots) to generate power, solar fueling stations can promote land conservation and reduce the conversion of farms, ranches, or other open lands for solar power generation. Finally, given the numerous government incentives available for solar systems, a solar fueling station can pay for itself through saved energy costs, usually over 5-10 years, after which time it essentially provides free energy.

[2] http://www.udel.edu/V2G/