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BEV carpools in disadvantaged communities, truck conversions, solar, et al

Additional submitted attachment is included below.

17-3-27_BEV carpools in disadvantaged communities, truck conversions, solar

I would like to make the case for an integrated approach to solving the problems of climate change, despite ‘so much resistance from behind’. The answer we found for improving conditions for people in disadvantaged communities as fast, and as inexpensively, as possible, is first up.

We learned that there are deep discounts on some low-cost 2016 model electric vehicles which are suitable for carpools on average commute distances. In a volume fleet sale program, we could get the same deal that Uber, Lyft, and tech companies supporting their employees get.

The bottom line could be a 50% to 60% discount off regular dealer pricing, after incentives. Great prices are also possible for new, 2017 model year BEVs, and previously owned as well. We could match up offers and ranges with the financial capacity and commute distance of the clients of the community development groups that we partner with.

In addition, Green Fleets Group Board Member Chuck Reynolds’ company Cyber Switching can cut the cost per port of charging stations in half or better, by rotating charging service among 4 ports, thus reducing capacity charges and the number of primary circuits needed. Our program targets places with long dwell times – work, residences, hospitals, community centers, etc.

That way four workers are getting a great deal, sharing the cost of ownership and charging -- far less than the cost of individually purchasing and operating old ICE cars. They also get to have a far easier, more pleasant trip to work, and stop contributing to the air pollution that causes asthma in their families.

The program we propose is a close collaboration between Green Fleets Group and Breathe California, with support from state and local bodies committed to reducing poverty and health impacts in the most disadvantaged 20% of census tracts in California, to

1. Educate people in their communities about the opportunity,
2. Form carpools and enable them to have 4-passenger electric cars to ride to work,
3. Provide charging stations, batteries and solar at their workplaces or residences.

Breathe California might be able to win the role of state administrator for all vehicle electrification programs, in the context of its track record and our one-stop-shopping program, and that could cover administrative funding. Breathe California has an amazing track record in outreach and education, going back to the anti-tobacco campaigns that changed our laws and habits, and coming up through nine years of work that Bob Garzee, Team Leader of Green Fleets Group, did helping to develop their electric vehicle-promoting capacity.

Someone mentioned in one of the workshops that separate funding dedicated to education and outreach may be included in the budgets. This would be important to the success of the program. Breathe California partners with community agencies, leveraging their existing relationships with people in disadvantaged communities, while the agencies leverage Breathe California’s expertise in education about the relationships among health, clean air, electric vehicles, and financial well-being.

We are exploring whether it is possible to finance the purchases, which would be cash on order, for fleet programs, if Green Fleets Group purchases the cars, marks them up to cover costs, and either resells or leases them to the carpools, or to some local or state agency able or formed to support the process. We are looking for someone who can use the federal tax credit, for those clients who cannot use it because their incomes are too low.

We also need to find someone who will fund part or all of the start-up expenses. Agencies, philanthropies, local governments and the State could reasonably provide funding to Breathe and Green Fleets, because we would be reducing the stress on your / their clients -- for instance, by enabling them to get and keep a job by being at work consistently, on time, with the energy and calm to focus and do a great job. We would also be reducing the impacts on their lung health.

I found a potential strategic partner for SeaWave Battery and Green fleets Group, who had an energy efficiency business in Illinois for 26 years, including a renewable energy spinoff, and is now taking it to a new and highly disruptive level. Besides cutting the cost of instrumenting a building dramatically, he has qualified for utility rebates, and is certified under ISO both internationally and nationally (here) to issue carbon credits. This combination, plus his expertise, creates a company that can scale, enormously and rapidly. I look forward to him and Green Fleets Group working together, so we can really cover all the bases.

A Political Perspective

I have been participating in budget-setting workshops with the California Energy Commission and the California Air Resources Board. Green Fleets Group and Breathe California leaders and I also met with Rebecca Kaplan, at-large member of the Oakland City Council, who is working to pass an ordinance requiring charging station make-ready in new construction and remodels, and sits on the Board of the BAAQMD, which has a program as well.

All of you are working as hard as you can to foster electric vehicle adoption and improved health in disadvantaged communities. You have all expressed interest and support for our program, and invited comment for your budget-setting processes.

I've read that the reason you are working so hard in this direction is that the top politicians committed to decarbonizing California have seen strong evidence that it is the only way to beat back the lobbying power of the fossil fuel companies, the auto industry, and the investor-owned utilities, in Assembly and Senate districts represented by 'Moderate Democrats'. The lobbyists provide money for campaigns, and their ads tell people that jobs will go away if renewable energy wins.

But if we can help the people financially AND clean up the air that makes some people in almost all of their families sick, the legislators who support that can win elections without fossil fuel, utility or auto industry money. One legislator showed the way 2 years ago, when he campaigned on health and clean energy jobs for the community, and beat back fossil fuel support for his opponent. It was the key to a puzzle that had stymied the Governor and the Legislature for years.

Another opportunity, in heavy-duty vehicle conversions

The Port of Oakland is moving toward a deadline for older diesel trucks to have access to port facilities, and most of the *5,000 independent truckers* who go there can ill afford to buy a new

truck, or even convert their older ones to the newest diesel engine retrofits. With financing to eliminate negative net cash flow, they could, instead, be able to thrive, driving 'old faithful' trucks with new electric motors that may last 400,000 to a million miles, at a fraction of the operating cost they labor under now.

By starting with those with shorter range requirements, we could use Green Fleets Group Board Member Rich Hatfield's motorcycle batteries (at 200 Watt-hours per kilogram – twice the industry average), until SeaWave Batteries, which we now expect to provide 580 Wh/kg (severe duty cycles) to 1160 Wh/kg (moderate duty), are in production. We hope that can be within 12 to 18 months. To get there, we need funding for filing additional patents, for testing and validation at national laboratories or equivalent, and meeting with potential investors to develop a relationship and work out a deal.

We were told that someone is developing a million-square-foot warehouse on the Oakland Army base. Containers would be taken directly there from the port, by a fleet of battery-electric shuttles. They would be sorted, and the less-than-load ones broken down for recombining. Then the independent truckers, and the fleets, could come in and pick up the outgoing loads.

With the objective of decarbonizing transportation in California, especially at ports near disadvantaged communities, it is obvious that close to a million square feet of solar should sit on the break-bulk warehouse, and lots of batteries should support distributing the electricity to the trucks waiting to load, after their conversion to BEV. Two prerequisites appear to be called for.

1. Putting in the charging stations (or at least the make-ready and switching systems), batteries and solar needs to be made financially attractive enough for the developer. One possible way, if there is time to get into production before they are needed, is to put ceramic plates with high efficiency solar printed on them, on the building as the outer sheath. This will provide great protection and lots of energy, at the same time. It will also save the cost of conventional sheathing.
 - a. The inventor of the SeaWave battery, William Todorof, is also a pioneer in thin-film solar pv, and has a design for this 'on hold', waiting for the battery to be complete. As with the battery, we expect the cost of manufacturing (and of the manufacturing equipment) to be a fraction of the cost of conventional technology.
2. A trial truck conversion on a small scale is needed for the independent truckers. The person who told me about this opportunity said he knows a small fleet owner who is positive about decarbonization, and would probably participate in such a project, with 2 or 3 trucks. With another 3 or more, the economics may be more favorable.

Then the fleets and the trucks run by the independent truckers could be converted in a large-scale program. This would need to be coordinated with ensuring that they will then have sufficient range to get through the day, or sufficient fast-charge services along their routes and at their home terminals.

Green Fleets Group Board Member Randy Bryant, head of the Automotive Technology program at De Anza College, has said that he can create the necessary curricula for training people in maintaining and operating electric vehicles. Board Member and Freedom Solar CEO Rich Moore can put up large, medium or small solar systems, so 'fuel' is free after they are paid off. Our

stationary batteries, running under an energy management system, can ensure that charging uses solar or least-cost grid electricity, avoiding peak charges. We can also provide ROI calculations, to help convince prospects to become customers.

Regards,

Mark Roest

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