

January 26, 2012

California Air Resources Board
1001 I Street
Sacramento, Ca.

RE: Comments on Clean Fuels Outlet (CFO) Regulation For Public Hearing at the January 26 – 27
ARB Board Meeting.

Dear Chair Nichols and Board Members.

I am writing this comment to express general support for the CFO with some reservations, but mostly to correct inaccuracies in the written statement by BP West Coast Products, LLC.

BP has made some statements about hydrogen which are at the least inaccurate, and at the worst, outright lies. Their opening line says it all and is one of the few accurate statements they made.

“BP recently celebrated 100 years in business and we plan to be in the business
of selling transport fuels for the next hundred years.

Except one change to be totally accurate, change “transport fuels” to OIL!

Now, let's correct the record. Just for the record.

Statement #1:

BP was one of the largest investors in hydrogen fueling research, demonstration and infrastructure build-out. We have built, in partnership with others, 15 hydrogen fueling sites around the world. Five of those sites have been in California. The most recent one - the so-called SMUD site along highway 50 – was built for renewable generation of hydrogen. That site is now closed for lack of use.

That is what this is all about. Oil! Yes they did do some early small demo projects at a few of their stations, and maybe they did invest more into these small demo projects than any other oil company, but not all energy companies, or maybe more likely technology developers, who have invested hundreds of millions and even billions into developing these technologies. As well as the vehicle technologies. Billions invested. The station in Sacramento they talk about was a demo project. I hope you understand that demo p[rojects] don't last. Because they are demo projects not commercially viable systems. The reason it did not do enough sales is because the auto companies have yet to roll them out. You need vehicles on the road to sell the fuel. This is going to happen over the next 5 years. That will be the test, and if there are enough fueling stations, the vehicles will sell. That is simply the fact.

However, we don't need the oil companies to participate. WE JUST NEED THEM TO GET OUT OF THE WAY AND QUIT PLAYING INTERFERENCE WITH STATION OWNERS! And stop opposing hydrogen like they have since the 1973 oil embargo. However if they wanted to support it, I welcome their participation. Although we don't need them. And you shouldn't try to force them. They will eventually start providing them when the company owned stations start reporting back that they have been getting requests for the fuel, and they will, when the cars start selling. And they will.

Statement #2:

BP has extensive experience in siting, constructing and operating hydrogen fueling stations. In addition to our global research and siting experience, we actively participated in the California Fuel Cell Partnership for six years. Our detailed research and experience has led us to the conclusion that hydrogen for transport will not be a viable transportation pathway in the long term, if

Go figure! BP came to the conclusion that clean, renewable/sustainable hydrogen doesn't work? No kidding? What a surprise. That is a crock if I have ever heard one. This is how these guys work. They join in on an effort to develop an inexhaustible clean, 100% sustainable fuel paradigm that they can't control and monopolize, then do it in a way that discredits it in anyway they can, only to quit later just so they can say they tried. If an alien species from another world visited us and presented to us a cheap, safe, clean and 100% sustainable fuel paradigm for free, they would demo it and then try to screw it up so they can then say it doesn't work. That is how they work. They have invested, not \$ millions, not just \$ billions, but hundreds of \$ billions in fossil fuels and oil import contracts, offshore drilling, refineries, proping up dictators, ruining the environment, and then trying to clean it up, and then spend millions doing PR and advertising trying to make you think they care about the environment and "the little people". But it's all just a white wash and a green wash.

Statement #3

ever. BP is instead focusing on what we believe to be more viable pathways – including advanced low carbon biofuels used in highly efficient conventional engines and vehicle hybridization.

Go figure, they pick the most un-sustainable paradigm they could choose. Biofuels is even less sustainable than oil. Scarcity is their motto, or it should be. We have already seen a huge increase in food prices over the last decade with the efforts to advance bio-fuels which can never meet our energy needs and will only cause food prices to skyrocket, as well as an environmental apocolypse if they ever deploy algae production when some bio-engineered algae escapes into the environment and end's up coating all our lakes, streams, and even the ocean. These guys sound like Enron salesmen "Let grandma starve" should be part of their new motto, and anyone doing biofuels for that matter. Anyone who says any different is blowing hot air up you skirts.

"In order to get significant [hydrogen fuel] deployment, you need four significant technological breakthroughs.... If you need four miracles that's unlikely: saints only need three miracles". Dr. Stephen Chu, US Secretary of Energy, Interview with MIT's Technology Review, May 14, 2009.

Yea, and he's been walking back that statement ever since wherever he goes. As well as an asinine statement before the Senate that there isn't enough natural gas (NG) to fuel these vehicles. When his own department shows that using NG with FCEVs is more efficient than using NG in ICEVs as well as has a smaller carbon footprint with FCEVs than NG ICEVs and even Battery Electric Vehicles (BEVs). Recently in a statement to Truelite Employees, a fuel cell development company Secretary Chu said "What Fuel Cell Electric Vehicles (FCEVs) need is a major effort to deploy fueling infrastructure." There are no miracles to hydrogen infrastructure deployment. In fact it is cheaper than any other viable alternative, e.g., Renewable hydrogen from electrolysis is cheaper to deploy at a gas station than bio-fuels. To deploy biofuels, the station owner needs to change out the gasoline tanks they have for biofuel tanks. That means they need to shut down the station and dig up the tanks and change them costing over \$300K, plus the construction, about \$200K, plus at least 1 month of lost business adding another 500K of losses in business. This comes from service station equipment suppliers. For \$1 million (less when greater economies of scale take place) they could get an on-site generated hydrogen system with only enough storage needed to fuel a couple of hundred kgs since the system generates it on demand, and with PPAs from Renewable Power Producers, you can have a 100% clean, zero emission from well to wheel, 100% renewable/sustainable energy paradigm that can last thousands of years into the future. And the gas station no longer has to deal with a fuel provider and can set their own price and profit margin. They like this and I have recruited over 20 stations to join a partnership to deploy this and through a Special Purpose Co-op, purchase the power they use to generate the fuel to sell. By the end of the year I'll have 100 stations joining.

There are many barriers to the hydrogen future as alluded to by Secretary Chu. First, on a well to wheels (WtW) basis, hydrogen fuel has a higher carbon footprint than electric vehicles and hybrid vehicles since the fuel would likely be reformed from natural gas. Despite the renewable hydrogen requirements of SB1505, there is no certainty that renewable hydrogen will be available in sufficient quantities, or at a reasonable price, during the period covered by this regulation.

They just pulled that out of the rear-end! Who are they getting that from? Not the DOE. The DOE has found that even hydrogen from NG SMR used in an FCEV produces less carbon than BEVs powered by grid power. Fact not in dispute by any credible source. As far as renewable hydrogen, that is what the station owners want, more than hydrogen from SMR, because SMR hydrogen needs to be delivered, not generated on-site and on-demand, requiring a large amount of on-site storage where space is at a premium. Did you know that Secretary Chu received a \$100 million grant from BP to do biofuels research at Lawrence Berkeley National Laboratory? Yea, and his 2nd. in command was a former BP VP - Steve Koonin.

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So a new CEO was hired, BP's hydrogen program was completely abandoned along with much of their solar and wind initiatives, as they focused back on their core business. Oil and Gas. That both Steve's might have some degree of loyalty to BP seems logical. That support for hydrogen would be dropped like a rock under the Steve's reign at DOE, just at the point when BP dropped its interest in hydrogen, is way more than coincidental.

Second, the extremely high costs of the hydrogen vehicle's fuel cell and storage tank make vehicle costs prohibitive. BP estimates that the current cost of an FVC is about \$180,000 (for a 60kW fuel cell module). Moreover, BP sees little prospect for significant technology cost reductions gleaned from learning that accompany "doublings" of manufacturing capacity. In order to achieve the Department of Energy's fantasy cost target of \$51 per kW (at production of 500,000 units), there would need to be 18 "doublings" of capacity via production of over 6 million FVCs, with an extremely aggressive and unlikely experience curve factor of 80%. BP estimates that the subsidies required to manufacture the first one million FVCs will range between 29 and 67 billion dollars, far greater than the approximately 14-16 billion dollars in subsidies required to produce electric vehicles.

Where are these guys getting their info from. Mass production of FCEVs are about \$53.00/kw. That's close to the cost of an ICEV (Internal Combustion Engine Vehicle) on the market now. Those prices BP is quoting is the production cost of the Beta Test Models, not the planned production models. The FCEV is 3x as efficient as most ICEVs on the market now. Their estimates of 29 and 67 billion to get to mass production is ridiculous and no other credible source will concur with them. Also, BEVs are, and will always remain more expensive than FCEVs because the cost of batteries will never reach a cost level that will compete with FCEVs, current cost/kw is estimated to be about \$73.00/kw in early rollouts, whereas BEVs, will cost about \$300-\$400/kw in early rollouts. So FCEVs are likely to require less subsidies than BEVs. And since fueling is less than 5 minutes (BEVs 4 hours for PHEVs, and 8-10 hrs for all battery), and a range 250 – 400 miles, they will sell when BEVs will do what they have done every 20 years since the advent of the automobile – fail miserably. There will never be a battery that will charge in 5 minutes and give you a competitive range with FCEVs. Also, with FCEVs, you don't burn out a \$20k - \$30k battery pack by trying to quick charge a BEV in 15 minutes regularly over a 2 year period. Again, that is why they support BEVs, because they know it will fail. Now "Who Killed The Electric Car???" Batteries, not the oil companies in cahoots with FC companies and Hydrogen Advocates. The oil companies want the BEV. This is the reason that BP and other oil companies pulled out of hydrogen, because it is getting close to being real, and they want to destroy it before it becomes a threat to their oil contracts and their energy monopoly.

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Finally, BP does not believe that anticipated hydrogen fuel cost savings will offset the higher fixed costs of making a FCV. Assuming natural gas prices at \$4.00 per mmbtu and other costs associated with the hydrogen production and fuelling infrastructure, we estimate the cost of hydrogen would be between \$5 and \$7 per kg. A kilogram of hydrogen in energy terms is equivalent to one gallon of gasoline. Therefore, unlike hybrid and plug-in hybrid vehicles where the cost of fuel is lower than for a conventional gasoline vehicle, for a fuel cell vehicle the cost of fuel will be higher than a conventional gasoline vehicle. Therefore an FCV user won't have a chance to recoup some or all of the higher vehicle cost through lower fuel costs.

Again, balderdash. FCEVs are 3x as efficient as the average ICEV, therefore that is equivalent to less than \$2 – \$3/gallon of gasoline equivalent (GGE). And as renewable generation expands production (will be expedited by hydrogen use), the cost will only get cheaper the more we use. Nothing else will ever achieve that. The cost of mass produced FCEVs will cost about the same (or a little more) than ICEVs, and the fuel cost/mile will cost less than gasoline. No wonder they are opposing hydrogen. And PHEVs and HEVs will run cleaner and eventually cheaper on hydrogen than gasoline as well, cause even ICEVs are at least 25% more efficient using hydrogen as it's fuel.

Our decision to exit the hydrogen for transport business was made at the highest levels of the company and supported by significant on-the-ground experience and research. At the time we exited the business, BP's hydrogen efforts exceeded the efforts of all other energy corporations in the U.S. combined. Furthermore, we are not aware of any company that invested more in California hydrogen fueling at the time of our exit.

Again, so a new CEO was hired, BP's hydrogen program was completely abandoned along with much of their solar and wind initiatives, as they focused back on their core business. Oil and Gas. Is that the same CEO that personally supervised the gulf oil spill?? Then a BP exec and a BP beneficiary gets appointed to head the DOE?? That both Steve's might have some degree of loyalty to BP seems logical. That support for hydrogen would be dropped like a rock under the Steve's reign at DOE, just at the point when BP dropped its interest in hydrogen, is way more than coincidental.

I would not take what any oil company would say in opposition to hydrogen with a grain of salt.

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We believe it is extremely perilous for policymakers, including CARB, to believe that they can pick and choose technology winners and losers better than the open marketplace – and to compel private investment in fledgling, unproven technology. Policymakers do not have a good track record for picking winners and losers in technology or fuels. CARB has seemingly understood this concept in their design and promotion of the LCFS. CARB members have touted the LCFS as performance based and fuel neutral. For all its faults – the LCFS at least recognizes the benefits of letting the market pick winners and strives for neutrality. It is incongruous, to say the least, for CARB with one hand to tout the benefits of a technology neutral fuels policy, while with the other hand plucking a single technology out of that “fuel neutral” policy and in the most heavy-handed way, mandating its deployment.

Of course they would they are an oil company with \$100's of billions invested in the petroleum paradigm. What else would you expect from an Oil Company! Fuel neutrality is their pathway to the status quo. This whole statement is a veiled threat to litigate this to death. Don't fall for it. BPs reputation is dirt in this country, and they won't go that route, they will support a proxy to do it, like gas station owners.

CARB staff has chosen to overlook the fact that there are entities who are voluntarily investing in this infrastructure and companies that will directly benefit from development and deployment of these technologies (Linde, Air Products, etc.). These companies have been most involved in the AB118 grants for refueling stations in California – and have been involved in hydrogen infrastructure build out in other countries. Rather than compel unwilling investment in this technology, CARB should work with those who are interested in deploying the technology to remove the hurdles to more investment.

Ironically, there is some agreement here I have with this part of the statement. As I said earlier, we don't need their participation, we would welcome it, but it is not necessary, we just need them to stop playing interference with the station owners, and stop lobbying against hydrogen and it will succeed with some temporary help from AB118 if you increase the amount spent on deploying hydrogen infrastructure. We'll do the rest. And when it starts to replace gasoline, they'll jump on board and start installing them and even making the equipment.

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BP's recommendations for a sound policy and regulatory approach

- Due to the early stages of development of hydrogen for transport, policy should focus on helping those who are interested in and will benefit from deployment of this technology. Policy should not force unwilling participants into this business.

I agree???

- Continue public funding of retail stations through programs like AB118 and ensure that in the AB118 reauthorization process, adequate money is allocated for hydrogen refueling stations in the geographic areas desired. The public should share in the risk of this early commercialization phase.

Again, ironically, I agree???

- Seek public-private partnerships and creative financing approaches to extend the use of the public money in contrast to the grant programs that are prevalent now.

No problem here as well.

- Seek incentives for fleet conversions (public and private) that reward operators who make their fueling facilities accessible to the public.

Sounds good to me!

I would add, provide incentives for stations that participate, like approving a zero carbon footprint for renewable generated hydrogen, tax incentives, pollution credits for reduction in pollution for displacing oil refining, and yes funding through ab118, increase the funding to it's original amount of \$40 million/year. Also, don't force small business to take on this expense before there are enough cars on the road for them to take the risk through equipment financing and leasing. Just require them to allow other entities in to install, and maintain. With the financial help of AB118 with increased funding to \$40 mill/yr for hydrogen infrastructure, the rest will happen organically.

Help make the permitting process easier and streamlined (one stop for all).

Provide tax incentives that oil companies that participate, like maybe permitting fee reductions, tax deductions, oil lease reduction fees proportionate to the amount of participation, reduction of pollution fines if they participate, etc.

Thank you for your consideration,



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