



7/14/19

To: United States Environmental Protection Agency

From: Tom Becker

Subject: California SIP revision, South Coast Air Basin, docket # EPA-R09-OAR-2019-0051

This is a public comment letter addressing the EPA proposed approval of the State of California's SIP revision for the South Coast Air Basin.

A few facts at the beginning of this comment letter:

- The State of California (the state) is currently threatening to sue U.S. EPA over the proposed revision of CAFE standards and the revocation of the state's emission waiver.

- The state has acted in bad faith in its negotiations with EPA over the CAFE standard revisions and state emission waiver revocation.

- The state has threatened to disrupt interstate commerce through protracted legal actions and physically blocking interstate commerce entering the state.

- The state refuses to return hundreds of millions of dollars to the federal government that was intended to be used on the now defunct "high speed rail" project. This action conclusively demonstrates a lack of good faith towards the taxpayers of the United States.

In addition of the established facts listed above, the following facts should be entered into the record:

- The state routinely violates its own environmental laws, rules and regulations, specifically the California Environmental Quality Act (CEQA).

- The state routinely violates the rights of its own residents by intentionally blocking, thwarting and ignoring comments and questions submitted by residents during environmental reviews of state public works projects and state planning documents that are governed by CEQA.

- The state violates CEQA, as described above, to create faulty documents that are then submitted to federal agencies and federal courts for the purpose of manipulating those agencies and courts.

- U.S. EPA knows the above facts to be true, and has publicly denounced the state as being a bad actor, acting in bad faith in matters involving public health, safety and expenditure of federal taxpayer money.

EPA Administrator Wheeler, in a letter sent to the House Energy and Commerce Committee, clearly and without reservation stated that the state was acting in bad faith in negotiations with EPA. Nothing has changed with the state's attitude and behavior, and Administrator Wheeler's characterization of the state should 100% apply to the state's SIP revision. EPA should take a minute and imagine how disrespectful and dishonest the state is towards its own residents that challenge the state's environment and planning documents.

There are 2 ways the state violates CEQA, and produces faulty documents to be submitted to federal agencies and courts for the purpose of manipulating those agencies and courts:

- 1) By determining in advance the desired political outcome and conclusions of environmental reviews of public works projects and planning documents, then blocking, thwarting or ignoring public comments and questions that in any way threaten the implementation of the desired political outcome and conclusions. CEQA requires that the Lead Agency responsible for the preparation of environmental documents completely, truthfully and in good faith respond to comments and questions that address the scope, adequacy and alternatives of projects and planning documents.

- 2) By intentionally providing false, misleading statistics, false, misleading technical information and false, misleading scientific conclusions, all for the purpose of achieving a desired political outcome or conclusion. It should go without saying that making false statements in a document governed by CEQA violates CEQA.

I have been active in reviewing environmental documents and transportation projects at the state and local level for over 20 years. If I was to include every example of how state and local governments violate CEQA and federal rules and regulations of all kinds, this comment letter may be perceived as a rambling rant. I will only include 3 recent examples, trusting that EPA understands I am attempting to keep this comment letter as brief as possible.

Example one is the Highway 101 widening project in South Santa Barbara County. The California Department of Transportation (Caltrans) was the lead agency for the project's Environmental Impact Report (EIR). The initial EIR was found to be deficient, and Caltrans was ordered to prepare a new analysis of mitigations. Even though Santa Barbara County is not in the South Coast air basin, this is an example of how Caltrans acts throughout the state, and can be applied to the state's actions in non-attainment areas.

Representing a non-profit group Cars Are Basic (CAB), I submitted an alternative proposal to widening the Highway 101, which called for Caltrans to study ways of reducing Vehicle Miles Travelled (VMT) on the highway, eliminating the need to add a third lane. Specifically, I asked Caltrans to study state and local government employee commuting on Highway 101, and determine if there was a way of removing government employee commuting during peak rush hour. This would include building housing for government employees west of the project area, or encouraging government employees to take jobs closer to their homes east of the project area.

Caltrans, in direct violation of CEQA, refused to respond to any alternative to widening the freeway. Caltrans determined in advance what they wanted, which was the widening project, and intentionally violated the rights of the state's own residents by blocking, thwarting or ignoring alternatives to the widening/construction project.

Example two is the County of Santa Barbara's Fast Forward 2040 Federal Transportation improvement Plan (FTIP) update, a planning document governed by CEQA. CAB submitted several questions as part of the planning document's EIR. We were one for just a handful of persons/ NGO's that submitted comments and questions. The Santa Barbara County Association of Governments (SBCAG) was lead agency. Once again, even though Santa Barbara County is not in the South Coast air basin, this example shows how Caltrans acts throughout the state, including non-attainment areas.

CAB submitted comments, questions and alternatives on the county's primary transportation system development, housing development, government development and commercial development planning document. We asked that the county study ways of reducing VMT by planning commercial and government development near locations where employees live. This would reduce commuter VMT.

SBCAG, in direct violation of CEQA, refused to respond to CAB's alternative ideas, questions and comments.

Caltrans had the lawful requirement to review and approve SBCAG's Fast Forward 2040 planning document. CAB sent numerous complaints to Caltrans specifically pointing out SBCAG's refusal to respond to comments, questions and alternatives. Caltrans refused to respond to CAB's complaints and approved the Fast Forward 2040 plan.

Example 3, the most recent example, is the California Air Resources Board (CARB) Zero Emission Airport Shuttle Regulation (the regulation).

In an effort to reduce Green House Gas (GHG) emissions, and regulated tailpipe/evaporative emissions, CARB proposed a regulation that outlawed non "zero emission" airport shuttle buses from operating at the state's airports. This is the first time, (that I am aware of) where private business and/or individuals are being forced to purchase "zero emission" vehicles if they wish to have access to public property. I sent 2 comment letters to CARB on the regulation. At least 2 dozen other persons/entities also sent letters. The regulation was developed by CARB as a blueprint for forcing all class 4-class 8 vehicle operators to purchase and operate electric trucks, buses, shuttles and vans throughout the state, for any and all uses. The regulation advances the state's political objective of forcing motor vehicle manufacturers to build electric vehicles, at the expense of the proper and fair application of interstate commerce in respect to other kinds of vehicles that people in other states wish to purchase and operate, and may not have affordable access to because of California.

To make a long story short, CARB, in complete violation of CEQA, intentionally refused to respond to most of the comments they received from the public, including most of mind. In addition to violating the rights of the public, CARB also made several blatantly false statements in the regulation's environmental analysis (EA). CARB conducted itself in typical State of California fashion: determine what the desired political outcome is, then thwart, block and ignore all comments and questions from the public that

challenge the desired political outcome, then place false, misleading information in the document to manipulate the public, the federal government and the courts.

Here is perhaps the easiest example of the kind of false statement CARB made in the regulation. CARB stated, as part of the economic analysis of the regulation, that they did not have enough information to make a precise estimate of the costs of cutaway electric shuttles. CARB then created an estimate of \$150,000 for a 2020 model year cutaway electric shuttle without subsidies, rebates or finance costs. CARB's estimate was challenged by the company Park & Fly in a public comment letter submitted by Park & Fly. CARB refused to respond to the comment, and refused to change the estimate. I contacted a shuttle manufacturer that CARB used as a technical consultant in the EA. I was sent a quote for an electric cutaway shuttle that was \$90,000 higher than CARB's estimate. In addition to the quote, the shuttle manufacturer also confirmed that CARB was fully aware of their electric shuttle's cost at the time CARB was preparing the regulation and its supporting documents. The quote I received is attached to this comment letter.

The state is attempting to create a scenario where they claim air quality improvements will be achieved mostly by reducing on road vehicle tailpipe/evaporative emissions. The state, as pointed out earlier, has intentionally thwarted, blocked and ignored proposals to improve air quality through better planning of cities and communities.

The state is attempting to force its will on other states by requiring motor vehicle manufacturers to build vehicles with emission standards the state contends are necessary to meet federal clean air standards. In reality, the state can meet federal clean air standards with the existing on road vehicle fleet if state and local governments worked in good faith with their own residents in developing good planning documents. As pointed out above, CARB is producing regulations using faulty documents to advance its desired political objective, to the detriment of the entire nation.

I have attached 2 additional documents to this comment letter. The first is a document that was sent to EPA and NHTSA concerning the CAFE standard revision and California's emission waiver revocation. The second is a comparison between Flex Fuel powered trolleys and electric trolleys that I prepared for a customer. It is now up the U.S. EPA to determine if they are going to accept California's abuse of CEQA, and submit to California's threat to disrupt interstate commerce through protracted legal actions and physical disruption of interstate commerce on interstate highways and at ports. I cannot fathom the state government's threat of physical force to block commerce into the state.

If EPA has any need for additional information, you can contact me at the email address below. I tried to keep this comment letter brief, and left out a great deal of information I wanted to submit.

Tom Becker

lesdeplorable7@gmail.com

To: Ms. Heidi King
Deputy Administrator
National Highway Traffic Safety Administration

To: Mr. William Wehrum
Assistant Administrator
Office of Air and Radiation
United States Environmental Protection Agency

From: Tom Becker

Subject: NHTSA/EPA revised CAFE standards, California emission waiver

Ms. King and Mr. Wehrum,

This letter concerns the proposed revision of federal motor vehicle CAFE standards and revocation of California's emission waiver.

In August, 2018, I submitted a comment letter to NHTSA/EPA regarding the CAFE revisions and the waiver revocation. That letter is attached. Over the past 10 months, the State of California has engaged in a campaign to stop both the CAFE revisions and waiver revocation.

To make this letter as brief as possible, there are people and businesses in California that support NHTSA's and EPA's efforts. In fact, there are people and organizations that have been attempting to correct California's problems for decades. Many Californians have engaged the

state government and local governments during environmental reviews of public works projects and planning documents.

The State of California has created its own air quality problems. From bad planning of cities, overdevelopment and foolish obsessions with unworkable transportation schemes, the state government has created a huge mess. The rest of the nation should not have to kowtow to California because the state is in a situation of its own making.

The people of California have a right, through the California Environmental Quality Act (CEQA), to have a say in how environmental issues are addressed and dealt with. Those rights are routinely violated by the state.

If the State of California obeyed CEQA, and developed proper planning documents and emission control strategies, then the South Coast Air Quality Management District (SCAQMD), and the rest of California, would meet federal and state air quality standards without requiring auto manufacturers to build motor vehicles that people in other states will not want to buy. Californians won't even buy them.

California can be compared to a grossly obese kid living in Malibu that never gets up off his parent's couch, and demands all potato chips and pork rinds trucked into California be calorie-free.

I have attached a comment letter I am submitting to the California Air Resources Board. It comments on a CARB regulation that will be the subject of a CARB board meeting on 6/27. It is just a sample of the efforts many Californians make. NHTSA and EPA should hold California accountable for violating its own environmental laws, rules and regulations. No federal court should grant any credibility to California if the state sues NHTSA or EPA.

I have attempted to keep this letter brief. I am not going to submit hundreds of pages of documents. Mr. Wehrum stated before congress on 6/20 that over 600,000 comments were submitted to NHTSA and EPA. Your people are dealing with a huge volume of letters you must respond to. If EPA and/or NHTSA wish to contact me for additional information, I will be glad to provide what I have. Just be aware that there are hundreds, even thousands, of people in

California that are involved in changing the attitudes and practices of the state government on this and other issues. If NHTSA and EPA were to tap into those resources, I believe the situation will work out well for everyone and every state in the Union.

Thank you,

Tom Becker

Buellton, CA

lesdeplorable7@gmail.com

8/24/18

From: Cars Are Basic

To: US Environmental Protection Agency

Subject: EPA docket EPA-HQ-OAR-2018-0283 vehicle fuel economy standards

Cars Are Basic (CAB), a nonprofit watchdog group based in Santa Barbara County, CA, is submitting this public comment addressing the proposed change to federal vehicle fuel economy standards.

CAB has been in existence for over 20-years. During that period, we have addressed the issue of motor vehicle fuel efficiency, fuel consumption and safety on several occasions. We have submitted several documents to the federal government, the State of California government, and local governments in Santa Barbara County.

During the past 2-years, CAB has submitted comment letters during environmental reviews of several transportation projects and planning documents. In our letters, we have asked numerous questions concerning state and local transportation and housing development planning. Many of our questions specifically concern planning priorities of state and local governments to reduce Vehicle Miles Traveled (VMT). In large part, the State of California government, as well as local governments and agencies, have refused to properly answer CAB's questions.

CAB has always held the belief that the best way to reduce motor vehicle fuel consumption and reduce the number of motor vehicle collisions is to properly plan cities and highways, so people can own homes close to their jobs. We also believe that the motor vehicle marketplace should allow consumers to freely choose the type and size of vehicle they wish to drive. Currently, it is common in California for people to own a home 30-60 miles away from their place of employment. This excessive distance causes commuters to burn millions of gallons of motor vehicle fuel every day that would not be consumed if those people lived within 10-miles of their jobs. A commuter driving a 20-MPG minivan on a 20-mile round trip commute will burn less fuel than a commuter driving a 40-MPG subcompact car on a 100-mile round-trip commute. A shorter commute is also safer.

Currently, the State of California government is threatening to sue US EPA over the proposed changes in federal vehicle fuel economy standards and California's waiver. For the past 2-years, CAB has asked the state to engage with us on the issue of reducing fuel consumption and VMT in California. As pointed out above, the state government has refused to answer our questions put to them in environmental review documents. In CAB's opinion, the state has no credibility, since the state has refused to cooperate with citizens of California who are attempting to reduce VMT and fuel consumption through proper planning.

The purpose of conducting environmental reviews of public works projects and planning documents, is to ensure the public's right to have their government respond to the public's concerns. The government of California, as well as Santa Barbara County governments, have thwarted the rights of the people by refusing to properly respond to questions during the environmental review process of transportation projects and planning documents. If the California government carries through on its threat to sue U.S. EPA, it should be pointed out in federal court, that the state intentionally refuses to work with its own citizens to develop and implement planning documents and transportation projects that would reduce motor vehicle usage and fuel consumption.

In closing, CAB would be very happy to assist US EPA, US Department of Transportation and US Department of the Interior, in their efforts to advance and promote President Trump's agenda. And just a blunt reminder: The best thing for the citizens of motor vehicle manufacturing states like Michigan and Ohio, is cheap gasoline and a thriving Made in the USA automobile manufacturing industry. EPA, DOT and Interior better get on the ball NOW, because November is not that far away.

Tom Becker

Cars Are Basic

lesdeplorable7@gmail.com

6/22/19

To: California Air Resources Board

From: Tom Becker

Subject: Zero emission airport shuttle regulation

- 1) The State of California is opposed to the EPA/NHTSA revision of Obama era CAFE standards.
- 2) The State of California is opposed to EPA's decision to revoke California's emission waiver.
- 3) The State of California has threatened to sue NHTSA and EPA over CAFE standards and the revocation of the state's emission waiver.
- 4) In order for the state to prevail in federal court, it must demonstrate that it acted in good faith with EPA, NHTSA and its own residents.

The zero emission airport shuttle regulation ("the regulation") is unique in one sense: This is the first time (that I know of) where the State of California is attempting to force private citizens and companies, who have no contractual agreements with the state, to purchase electric vehicles.

Many businesses who enter into contracts with the State of California are required to meet extraordinary state emission requirements as part of the contract. For instance, Mission Linen Supply was required to purchase hybrid delivery trucks as part of Mission Linen's contract with the state to provide laundry service for the state prison system.

With the regulation, the state is forcing persons and companies who simply drop off and pick up people at airports to either purchase and operate electric buses or stop entering and parking at airports. CARB has intentionally excluded all other technologies from eligibility to meet the regulation requirements, even those technologies that, if utilized on other motor vehicles, would result in the entire South Coast Air Quality Management District (SCAQMD) meeting both state and federal air quality standards.

The state has acknowledged that the zero emission shuttle regulation is a test bed for future efforts by the state to impose electric vehicle mandates on all California residents and businesses, mandates that would force California residents to purchase and/or operate only electric vehicles, and would make operating a vehicle powered by any other technology a violation of the law.

As part of public participation in the zero emission airport shuttle regulation, 26 entities (individuals, businesses, government agencies and nongovernment organizations) submitted 29 comment letters. I submitted 2 letters.

CARB is operating under the California Environmental Quality Act (CEQA) in the preparation of the regulation. CARB even waived several exemptions it was entitled to under CEQA. As such, CARB is required to respond completely, truthfully and fairly to all comments and questions received from the public that, in any way, address the scope and adequacy of the regulation, or propose alternatives. CARB is also required to provide the public with requested documents, that CARB has in its possession, that the public needs to prepare comments on environmental reports and statements that are prepared under CEQA rules, regulations and statutes. Under CEQA, the State of California must act in good faith.

Many of the comments submitted by the public concern alternative fueled Internal Combustion Engine (ICE) shuttle buses. My comments included requests to CARB to include in the alternatives section of the regulation environmental document a scientific analysis of butanol fueled shuttle buses. Other members of the public requested scientific reviews of CNG and biodiesel. In addition to the aforementioned fuels, I will also request a scientific review of ethanol fueled shuttle buses.

I, along with several other commenters, also requested a scientific comparison between alternative fueled ICE shuttle buses and electric buses. The requested comparisons include comparisons in vehicle purchase costs, comparisons in supporting infrastructure costs, comparisons in fuel costs per mile, comparisons in maintenance costs and comparisons in operating range.

Among the false and misleading statements CARB made in the regulation environmental document that were pointed out by several commenters are:

- A) False statements of the actual purchase costs of electric shuttles.
- B) False statements of the actual cost of electricity, in costs per kilowatt hours.
- C) False statements of the availability of electric shuttle buses.
- D) False statements of the cost of electric shuttle bus supporting infrastructure.
- E) False statements of the durability and operational lifespan of electric shuttle buses.

And just to be clear, I have never communicated with any of the other commenters. Yet, independent of each other, we came to similar conclusions and made similar observations of the defects in the regulation environmental document.

Over the past decades, I have been involved in state transportation and environmental issues. In addition to involvement with CARB, I have also been involved with transportation projects or planning documents where the California Department of Transportation (Caltrans), the County of Santa Barbara and the City of Santa Barbara have been lead agencies on environmental reviews. I have submitted documents during the environmental reviews of public works projects and planning documents, either representing myself or nonprofit organizations. Many of those environmental documents were prepared under the rules, regulations and statutes of CEQA. Without exception, Caltrans, the County of Santa Barbara and the City of Santa Barbara have committed gross violations of CEQA in those environmental documents, specifically by making false statements, and intentionally refusing to respond truthfully, completely and fairly to public comments that address the scope and adequacy of the documents or that propose alternatives.

In many of the environmental reviews where Caltrans was lead agency, I submitted requests that Caltrans perform scientific analysis of non-construction alternatives to public works projects and planning documents that would reduce vehicle usage and Vehicle Miles Traveled (VMT). I pointed out that reducing VMT would save the taxpayers tens of millions of dollars in construction costs, avoid the environmental damage associated with construction, reduce vehicle emissions and reduce fuel consumption. The State of California, through Caltrans, deliberately, with possible malice, refused to consider non-construction alternatives, as well as similar requests made by other people. The State of California's actions were not only done with possible malice, but also have indications they were done with intent to commit fraud

upon federal taxpayers and federal courts of law. Complaints have been filed with the Federal Highway Administration (FHWA) concerning the expenditure of federal taxpayer money on Caltrans public works projects that utilize fraudulent environmental documents.

I request CARB delay the approval of the Final Regulation Order and environmental review document until the following actions have been taken:

1a) CARB releases all responses to public comments submitted as part of the environmental review, including responses to the 15 day review period.

2a) CARB releases the Final Statement of Reasons.

3a) CARB releases the full text of the proposed Final Regulation Order and the full text of the final environmental review document, including all changes made to the regulation and environmental document incorporated into the body of said documents.

4a) CARB hold another 15 day review after actions 1a-3a have been taken, and the public has had time review the documents and submit responses.

On June 19, 2019, I requested CARB release the documents itemized in 1a-3a on or before June 21, 2019. CARB refused to do so. I stated that I needed the documents to prepare my comments to be submitted to the CARB board on or before the CARB Hearing on June 27. CARB still refused. Because of CARB's refusal to release the documents, it has damaged my right to submit a much more detailed comment than what is contained in this letter. This deliberate, and possibly malicious, action on the part of CARB is indicative of the attitude of the government of the State of California towards its own residents who attempt to exercise their rights under CEQA.

As mentioned earlier, the State of California has threatened to sue EPA and NHTSA. As I have pointed out in this comment letter, the state has deliberately, with possible malice, prevented its own citizens from enjoying their rights afforded under CEQA. CEQA gives citizens the right to fully participate in the environmental review process, and is designed to make state government responsive to the people. The State of California has, with possible malice, thwarted the rights of its own citizens. One of the purposes of CEQA is to provide a means to settle disputes during the environmental review process, so issues raised during environmental reviews do not wind up in a court of law. That purpose is clearly stated and codified in CEQA.

The State of California routinely violates that purpose of CEQA, and deliberately ignores opportunities to resolve issues during the CEQA process. The state then threatens to sue in courts of law, using the threat of protracted legal action to intimidate people, businesses and other government agencies into accepting environmental documents and practices that have been produced by fraud, deceit and violations of state law. Courts of law are intended to be the last resort to settle disputes. The State of California has turned the courts into the first weapon in its arsenal to bludgeon opponents into submission.

I encourage the State of California to work with its own citizens to develop workable environmental and planning strategies to improve air quality. A proper review of the zero emission airport shuttle regulation, faithfully following the legal requirements of CEQA, will move the state towards workable, scientifically sound strategies that will meet state and federal air quality standards. I encourage both CARB and Caltrans to not engage in unlawful, malicious and fraudulent practices that damage the CEQA process. And I encourage CARB to work with the citizens of the State of California in good faith to avoid the EPA/NHTSA CAFE standard revision and California waiver revocation from winding up in a court of law.

Thank you,

Tom Becker

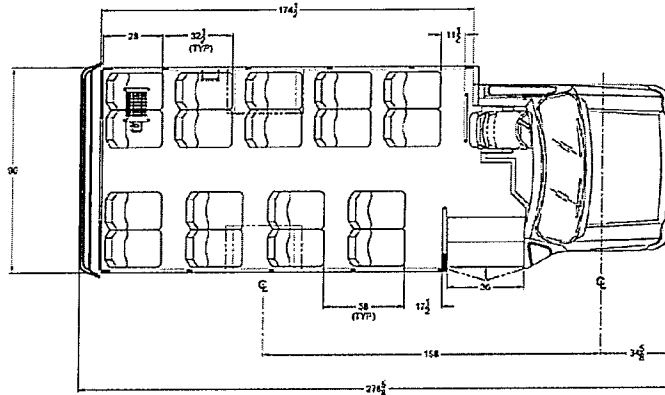
Buellton, CA

lesdeplorable7@gmail.com



Tuesday, July 09, 2019
 Proposal For: Santa Barbra Old Town Trolley
 Attention: Tom Becker

2019 Starcraft Allstar 24' – 18 Passenger



Allstar 24' 158" WB E-450 Phoenix Motorcars Zero Emission 105kw Drivetrain	
SIDEWALL / REARWALL / CEILING	
Sidewall: Grey FRP	
Rearwall: Grey Seaspray Fabric	
Ceiling: Grey Seaspray Fabric	
Driver Area: Grey Padded Vinyl	
FLOORING	
Gerflor Sirius NT #6727 Anthracite (Grey) I.L.O. Graphite	
CHASSIS	
Exterior Mirror Set, Remote/Heated	
Stainless Steel Wheel Inserts	
Valve Stem Extender	
ENVIRONMENTAL CONTROL	
DUAL COMPRESSOR SYSTEMS CEILING MOUNT EVAPORATOR	
TA73R60 SUPER 70K - TA73 EVAP - R60 RM COND - 10 C.I.D. COMP	
TA73R60 SUPER 10	
HEATERS	
Hot Water Heater, 65K BTU Floor Mounted	
EXTERIOR LIGHTS	
Surface Mount LED Entry Door Exterior	
LED Mid-Ship Turn / Marker Lights	
INTERIOR LIGHTS	
Door Activated Interior Lights	



Creative Bus Sales

AUDIO / VISUAL
Deluxe AM/FM/CD With Clock & 4 Speakers PA Ready
PA Module to be Added to Stereo System
DOORS / HATCH / WINDOWS
Passenger Door 36" ROUGH OPENING (STANDARD)
SAFETY OPTIONS
5 Lb Fire Extinguisher
16 Unit First Aid Kit
Emergency Triangle Kit
Back-Up Alarm SAE Type C 97 db(A)
GRAB RAIL / STANCHION / PANELS
1 1/4" Dual Entry Grab Rails Parallel to Entrance Steps (both sides)
Stanchion and Modesty Panel Behind Driver
SEATING - DRIVER
SHIELD FC Recliner RH Arm, 4 Position Lumbar, Mesh Pocket
FREEDMAN SHIELD & LO CAM DRIVER SEAT FABRICS
Driver Seat Cover - Level 4
SEATING - PASSENGER
STD RIGID SEATS
18 - Mid High Seat
PASSENGER SEAT FABRICS
18 - Seat Cover - Level 4
SEAT OPTIONS
18 - Seat Belt Loop
SEAT BELTS
18 - Seat Belt, Non-Retractable

Ford Upfit Rebate
 Ford Fleet Rebate

Pricing

HVIP Funding	(\$80,000)
Total Cost	\$147,000*
Phoenix Extended Range (deletes 2 seats)	\$163,000

*Plus tax, title and DMV fees.

July 9, 2019

To: Santa Barbara Trolley

From: Tom Becker

Subject: Analysis of gasoline/alcohol powered trolley verses 100% battery power.

This is a comparison between gasoline/alcohol powered trolleys (Flex Fuel Vehicles or FFV) and trolleys that are 100% battery powered. This analysis was prepared for Santa Barbara Old Town Trolley, to aid the owners in their decision to purchase FFV trolleys or battery powered trolleys.

The bottom line is FFV trolleys have vastly greater utility, cost 1/3 the amount of a comparable battery powered trolley, and when financing is factored in, 1/4 the cost. Electric trolleys are quieter and may have lower maintenance costs. Fuel cost differences depend on the price of electricity and gasoline/alcohol.

Purchase cost comparison

Currently, a Molly Trolley built on a 2019 Ford F-53 stripped chassis with a 6.8L V10 engine and automatic transmission would cost SB Trolley ~ \$ 130,000.

A comparable electric trolley with a 125 KWH battery pack would cost over \$380,000.

The price difference between a FFV trolley and an electric trolley is \$250,000.

Finance cost comparison

The financing cost difference between a FFV trolley and an electric trolley, at a 5% interest rate, 7 year loan, 7.25% sales tax and \$20,000 down payment is \$48,759 for the electric and \$16,678 for the FFV.

Maintenance cost comparison

I have calculated maintenance costs based on repairs and servicing performed on trolleys #3, #4, #5, #9 and #10. Those trolleys were purchased new by Santa Barbara Trolley between 2000 and 2002. The average mileage is 153,212 miles. Bottom line, maintenance cost averages out to be 23 cents a mile. That would include replacing 1 engine, 5 transmissions, 3 radiators, 15 starters and/or alternators, 15 batteries, 20 brake rotors, 40 brake pad sets, 77 spark plugs, 40 exhaust manifold studs, 1 timing case cover, 131 tires, 4 brake calipers, 2 power steering pumps, 2 hydro boost units, 2 fuel pumps, 2 kingpins, 4 rear leaf spring sets, 3 parking brake assemblies, 3 tailpipes, 2 tie rods, 6 engine mounts and other numerous small repairs, lights, hoses and belts.

Maintenance would also include 200+ oil changes, air and fuel filter replacements, 25 transmission services and 17 differential services. In addition, we replaced rotted wood, repaired roofs, refinished interior and exterior wood and replaced broken glass.

An electric trolley would have many of the same maintenance issues, such as tires, steering, suspension and lights. Non-powertrain and non-brake repairs on a FFV trolley are ~ 50% of all repairs.

Assuming that EV powertrains, batteries and brakes will have 1/3 of the maintenance needs of a FFV powertrain and brakes (that IS an assumption, not an established fact), a FFV trolley will have a maintenance cost of 23 cents per mile, while an EV trolley will have a maintenance cost of 16 cents per mile. That is a difference of 7 cents per mile. Over a 150,000 mile span, the EV would save ~ \$10,500 per trolley.

Fuel cost comparison

Fuel cost comparisons are tricky. That's because electricity costs and gasoline/alcohol costs fluctuate. To make it simple, I will use the current cost of

regular gasoline at \$3.30/ gallon and an electricity rate of 17 cents per KWH. A FFV trolley will achieve 6 MPG. That's 55 cents/miles. An EV trolley will use 1.35 KWH per mile. That's 23 cents per mile. That is a 22 cent per mile difference. Over 150,000 miles, the EV trolley would save \$33,000. If the cost of electricity goes up, or gasoline/alcohol goes down, the advantage an electric trolley may have now would diminish or vanish.

To summarize cost differences between FFV trolleys and EV trolleys:

An electric trolley would cost: \$428,759 to purchase and finance.

A FFV trolley would cost: \$146,678 to purchase and finance.

Difference in cost: \$282,081

Maintenance cost savings with electric trolley: \$10,500

Fuel cost saving with electric trolley: \$33,000

Total savings with electric trolley: \$43,500

Total additional cost to purchase and operate an electric trolley over 150,000 miles:

$$\$282,081 - \$43,500 = \$238,581$$

Range difference

An electric trolley with a 125KWH battery pack would achieve an extreme range of 93 miles with a 10 mile reserve. Using a safer 50 mile reserve value, an electric trolley would have a range of 53 miles, assuming the batteries are in good condition and the trolley is operated on level ground.

A FFV trolley with a 70 gallon fuel tank would achieve a 320 mile range with a 100 mile reserve.

Santa Barbara Trolley operates 2 tour trolleys, 60 miles per trolley per day, 7 days a week. The tour trolleys climb the hill up to the Santa Barbara Mission. With a 53 mile range on flat, level land, the electric trolley would never make it more than 2/3 the way through the daily tour. It would have to be re-charged during the day. Since the trolleys park on the street while stopped between tours, and MUST be charged while they are parked or face the prospect of running out of battery power, chargers for the exclusive use of Santa Barbara Trolley would have to be installed right at the curb, on city owned sidewalks, and other vehicles physically prevented from blocking the chargers. In addition to the difficulties facing the tour trolleys, charters with a round trip distance greater than 53 miles would not be possible.

Conclusion

Considering the operations of Santa Barbara Trolley, the practical use of electric trolleys would be limited. The only real advantage electric trolleys have is their

quiet operation, which may be useful at locations where quiet operation is important, such as the Santa Barbara County Bowl.

However, the reality of being in California is another story. Recently, the California Air Resources Board (CARB) outlawed the use of non-electric shuttle buses at airports located in the state. CARB has signaled they may completely ban non-electric buses and shuttles statewide, for any and all uses. Santa Barbara Trolley may be forced to purchase electric trolleys and shuttles. If that's the case, Santa Barbara Trolley will have to consider significant changes to its business model, including shorter tour routes, elimination of all charters with round trip mileages greater than 50 miles, and sharp increases in ticket prices and charter prices. And a word of warning: Don't let any electric bus salesman, or anyone else, convince you that it's safe to operate an electric trolley with less than 50 miles of power left in the battery. That's like driving with the fuel gauge needle on empty. One source of relief may be the state HVIP program, which may allow Santa Barbara Trolley to receive a taxpayer subsidized \$80,000 rebate towards the purchase of electric trolleys. That would reduce the extra cost of an electric trolley from \$238,531 to \$158,531. Another suggestion from an electric shuttle manufacturer I talked to was to purchase their \$280,000 electric shuttle bus and have it wrapped to look like a trolley.

Tom Becker

lesdeplorable7@gmail.com