

ISSUE: **HYBRIDS/PLUG IN HYBRIDS (March 13, 2008)**

Has anyone done a recent Hybrid dollar cost comparison (i.e. a Toyota Prius compared to a Ford Focus)?

REQUESTOR: Al Upton, Manager Fleet Services – Butte County Public Works

COMMENTS

SONOMA COUNTY, Dave Head, Fleet Manager

I've got 150 hybrids in the fleet. I haven't updated my analysis this year but I've found that the maintenance cost has been .01 to .03 per mile lower and fuel costs are .07 to .09 per mile lower than a conventional sedan. We also estimate the residual value on the hybrid to be over \$6,000 as opposed to the \$1500 to \$1800 I get for a compact car. Those numbers help make the argument that the hybrid actually has a lower ownership cost. We'll know the residual value next year when I sell our 2002 Prius's.

I will be doing an updated cost analysis in the next week or two, (I might start on it today, now that someone wants to know) I send a copy out to the group when it's done.

On conventional Prius hybrids, I'm averaging 42 to 45 mpg in normal rural driving. Most of my departments are based in Santa Rosa but their clients are all over the County. If the driver pays a little attention to how they're driving they can get in the high 40's/low 50's consistently even on open road driving. We have a lot of hills in Sonoma County and are still getting very good mileage. I've been very impressed with the Toyotas, Prius and Camry. I would recommend that anyone that's thinking about it should bite the bullet and buy a couple and see how they do. We've been very happy with both cars.

There is a push here in Sonoma County to convert some vehicles to plug in hybrids (PHEV). I have argued that we should wait until the OEM's have developed the technology and we can buy production units. I am still being asked to put in at least one vehicle so we can see if they will work for us. My research has led me to a company called A123 Systems and their subsidiary Hymotion. They seem to have a system that is relatively inexpensive, \$9,995.00, installed (plus freight and tax) and is certified by NHTSA and the EPA for safety and emission standards.

Is anyone else looking at PHEV's and if so what have you found out and what is your experience. If you have successfully argued against them, what was your argument? I don't have a problem with the concept and I see some applications in the fleet where they could be successful. However, I see similarities to both the EV and CNG pushes 12 years ago that cost a lot of money for little results. I just don't want to get out in front this time. I prefer proven and production technology. Feedback please, you may be next.

LOS ANGELES COUNTY, Rick Teebay

A123 is a privately held company. GE (as in General Electric) took a significant equity position in A123 more than a year ago. So GE thinks A123 is on to something.

The So Coast AQMD pioneered some of the plug-in technology. The first one plug-in Prius cost about \$130,000 each. I have seen the prices fall precipitously since then, but \$10K sounds way cheap.

Rick Sikes of Santa Monica had one of his Prius converted several years ago. The conversion was largely funded by the AQMD. The plug in Prius has been getting about 950 mpg. That is because on a typical day it goes less than 40 miles around Santa Monica and recharges over night. Almost the only time the engine starts is when they take it to the AQMD or Palm Springs for "Show & Tell."

Part of the issue with the manufacturers' reluctance to roll out the plug-ins is the batteries and battery life. Your Prius or Civic have an 8 year warranty on the hybrid battery pack. The current hybrids rarely discharge more than 20%. If they were more deeply discharged, the battery's service life would be far less than 8 years. The conversion folks install a different (larger) battery packs and they "hack" the OEM's software. (Did I mention you void the OEM warranty?) The good news is, the cars run about 40 miles depending upon driver, load, grade, etc. before the engine kicks in.

This fall, I met the CEO of Johnson Controls. She said they will be providing the next gen battery packs (I want to say Lithium) probably in 2009 – like the ones that will be used in GM's plug-ins. This is the "break-through" that every one has been waiting for.

If you are being pressed, do a pilot. Meanwhile, talk to Clay O @ GM and try to get on the short list for I believe the new Saturn Vue plug-in that will be coming. I'll find out who the other conversion suppliers are.

The cost of recharging plug-in is way cheap. The recharging cost is the equivalent of 50 to 75 cent per gallon equivalent. But all of you environmentalists need to remember that currently between 60 and 70 percent of California's electricity comes from coal-fired plants in Utah...

Edison has some plug-in Ford Escapes. They are getting a total of 50 of Ford's first prototypes. Toyota has provided two of their own 110V plug-in Prius prototypes to UC Berkeley.

There is some extraordinary stuff coming out of a collaboration between Berkeley, Lawrence Livermore, Sandia and others on cellulosic E-85. When they get the process right, it could ruin Corn farmers. It is still some years down the road. They believe that we could make almost half our gasoline from weeds....

SAN FRANCISCO CITY & COUNTY, Tom Fung, Fleet Manager

No hybrid cost comparison but many articles out there in the press to reference. San Francisco is on mandatory B20 citywide, including transits, with no major fuel or warranty related issues to report.

In my former life at Alameda County, our 50 or so Prius & Civic Hybrids were averaging over 40mpg doing motor pool duties, and we're talking just warm bodies and driver licenses here. Give it a try.

SAN DIEGO COUNTY, John Clements, Fleet Manager

We have a Board of Supervisor's policy on vehicle purchases including alternative fuel/hybrid vehicles. Basically, the policy:

- 1) sets a goal of acquiring 25% of the "eligible" vehicles we purchase as AFV/Hybrid,
- 2) limits the purchase of SUVs to verified work assignments and
- 3) by class of vehicle we purchase the lowest emissions and best fuel economy vehicles.

It gets a little gray as we also have a Board approved Standardized Fleet Vehicle program which is basically our Ford only for light duty vehicle process. "Eligible" is defined as an acceptable AFV/Hybrid vehicle must be commercially available, refueling infrastructure must be available and cost (to some extent) may be a factor. As the AFV refueling infrastructure is very limited in San Diego, we continue to incorporate a significant number of hybrids into the fleet at approximately 35%/year.

We attended a local presentation on converting a Toyota Prius to a plug-in sponsored by our utility company - San Diego Gas and Electric. The Toyota that was actually converted is owned and operated by San Diego Gas and Electric. I can't recall the conversion vendor's name but could find it if anyone is interested. For what it was,

the company seemed solid and the product well engineered but pricey. However, we went away questioning liability and warranty issues. In subsequent conversations with SDG&E staff, I found out their staff (SDG&E employees) have to sign a waiver in order to use the converted Prius'. In our litigious society I don't know how much liability you can "sign away" but at the formal presentation everyone dodged warranty and cost of recharging questions. This particular company also stated they were working on a kit for the Ford Escape.

CONCLUSION: Thanks for all of the information, you guys are great, nothing beats actual experience. You guys in the Urban areas often face these type of issues before it becomes a consideration in Rural counties like Butte. I haven't purchased Hybrids as of yet due to the long distances traveled throughout Butte County. If you are always in the engine mode I don't see a significant cost savings over a comparable sized vehicle, but of course as fuel prices continue to climb and political pressures exist to reduce green house gases we have to constantly weigh out the benefits. I proposed to switch to Biodiesel a couple of years ago and as the price difference was approximately 20 cents per gallon more at the time asked for a grant from our local Air Quality to offset these costs I was turned down however due to cost versus benefit. Thanks again for all the valuable information.

BUTTE COUNTY, Al Upton, Fleet Services Manager