

***BIC Meeting of
April 17, 2013***

Agenda Item #9



DATE: April 17, 2013
TO: Tom C. Hui, S.E., C.B.O., Acting Director, Department of Building Inspection
FROM: Pamela Levin, Deputy Director, Administrative Services *Pamela Levin*
RE: Electrification of the Department of Building Inspection's Fleet

At the February 20, 2013 meeting of the Building Inspection Commission (BIC), staff was requested to analyze the issues involved in replacing the existing fleet with electric vehicles in order to become fully "green". The Department of Building Inspection (DBI) has been purchasing environmentally friendly vehicles since the 1990's and after the FY 2012-13 vehicles are received, 79% of the 99 vehicles will be either a hybrid or powered by CNG (See Attachment)

Effective this fiscal year, DBI began purchasing 10 cars per year and retiring a like amount. The new cars are hybrids and trucks. DBI is also budgeting for purchase of three electric vehicles in FY 2013-14 so that their performance in the field can be evaluated; however, several logistical issues will need to be worked out. This memo outlines the pros and cons of accelerating the current vehicle plan by replacing the entire fleet with electric cars by the end of FY 2015-16.

HEALTHY AIR AND CLEAN TRANSPORTATION ORDINANCE (HACTO)

One of the goals of HACTO is to implement "policies to minimize the use of single occupancy vehicles and reduce the total number of passenger vehicles and light-duty trucks in the municipal fleet." The ordinance requires departments remove from service, without replacement, at least 5 percent of total number of passenger vehicles and light-duty trucks that existed in FY 2009-10.

The Department has requested a waiver of this provision based on the need for vehicles for inspection activities. If approved, the waiver is only good for one year so DBI must repeat the request on an annual basis. The request is still under review by the Department of Environment, the Office of the City Administrator, and the Mayor's Budget Office. Any vehicle plan, regardless of whether it is based on the budget or is accelerated to include an all-electric option, must assume approval of the waiver.

ECONOMIC IMPACT

Cost

The FY 2013-14 and FY 2014-15 Budget as approved by the BIC, which is currently under review by the Mayor's Office, includes a total of \$705,000 over the two years for replacement of 10 vehicles each year. The FY 2013-14 budget also includes purchase of 3 additional new electric cars. Pursuant to the budget instructions, the MSRP with sales tax was assumed for the cost - \$30,000 for hybrid sedans and trucks, \$35,000 for electric sedans.

The types, year and total costs are as follows:

- 8 hybrid sedans and 2 trucks in FY 2013-14 along with purchase of 3 additional electric vehicles for a total of \$405,000, and

- 6 hybrid sedans and 4 trucks in FY 2014-15 for a total of \$300,000.

A second alternative would be to use the DBI fund balance to convert the existing fleet to a predominately electric fleet, including purchasing and installing the infrastructure, over a three-year period. For the vehicles alone, the cost would be \$3,115,000 over the three-year period. This assumes that:

- 9 hybrid sedans and 2 trucks purchased in FY 2012-13 will stay in the fleet,
- 74 sedans would be replaced with electric cars over the three year cycle,
- 3 new electric cars that are in the FY 2013-14 budget under consideration by the Mayor's Office, and
- 14 trucks would be replaced with new trucks over the three year cycle.

Charging/Fuel

It is essential that the infrastructure be available for charging and fueling the vehicles. There are two considerations – the power supply and charging stations.

Currently DBI vehicles are parked in a leased Caltrans parking lot which the City does not intend to buy, even if it were for sale. In order to install charging stations, a capital investment must be made to bring a power supply to the parking lot. Real Estate received an estimate from DPW that says it will cost between \$300,000 and \$400,000. State approval would also be needed to effectuate such work. Real Estate does not recommend this investment in a leased parking lot.

The upper garage level at 1660 Mission can accommodate 2 more chargers with an existing power source, which can support the 3 electric sedans requested in FY 2013-14 budget under consideration by the Mayor's Office. Several logistical issues, such as where the vehicles will be parked, have not been worked out. There are insufficient charging stations at 1660 Mission for a large fleet of electric cars. Additionally, there are chargers in the 1650 Garage that are used by several departments and have limited availability.

The City Hall Building Management recommends a 1:1 ratio of charging station to electric/hybrid vehicle, although it is feasible to plug two vehicles into one charging station (2:1 ratio) to minimize costs. Per Real Estate, the cost of the EV stations for materials and installation is approximately \$10,000-12,000 per station (with telecommunications that read power usage, remaining mileage on current charge, charging time etc) and \$7,500-\$9,000 per station without the telecommunications feature. In order to quantify the cost of the charging stations it is assumed that the cost would be \$11,000 per station with a low-end range on 1:2 station to electric/hybrid vehicle ratio.

	2013-14	2014-15	2015-16	Total
Electric	3	38	36	77
Cost of Charging Stations	22,000	209,000	198,000	429,000
Cost of Power Supply	400,000	N/A	N/A	400,000
Total	422,000	209,000	198,000	829,000

NON-ECONOMIC IMPACT

Emergency Response

DBI has an important role to play in responding to emergencies; including fire, water and sewer line breaks, mud slides, and major earthquakes. In all cases, a reliable source of fuel/power is essential. While DBI has no historical data on how long power may be off in a major event, dependence on electric vehicles may result in an absence of critical resources.

Diversity

Both Central Shops and the Department of Environment have recommended that fleets be diverse in terms of make, model and technology. The second plan outlined above would result in the following fleet composition:

	BUDGETED VEHICLE PLAN	PLAN IF ELECTRIC EXCEPT TRUCKS AND HYBRIDS PURCHASED IN FY 2012-13
	Total end of FY 2014-15	Total end of FY 2015-16
Honda Civic CNG	27	0
Toyota Prius Hybrid	54	9
Ford Crown Victoria CNG	0	0
Ford F150 CNG	2	0
Toyota Camry	1	0
Ford Taurus	1	0
Ford Ranger	6	0
Chevy Colorado	8	16
Electric	3	77
Total:	102	102

In the event of a recall or other type of global vehicle defect, over-reliance on one type of technology can severely limit the availability of resources.

Timing of purchases

The current plan envisions that the entire DBI fleet would be replaced every ten years at ten vehicles per year. This plan allows for consistency and predictability in budget development. Spreading out the purchases over three years allows for different model years, and issues in any given model can be isolated without impacting the entire fleet.

	Year											PLAN IF ELECTRIC EXCEPT TRUCKS AND HYBRIDS PURCHASED IN FY 2012-13				BUDGETED VEHICLE PLAN	Total end of FY 2015-16
	1999	2000	2001	2004	2005	2006	2007	2012-13	Total end of FY 2012-13	Budget 2013-14	Budget 2014-15	Total end of FY 2014-15	2013-14	2014-15	2015-16		
Honda Civic CNG	4	-	6	14	10	2	-	-4	32	-3	-2	27	0	-16	-16	0	
Toyota Prius Hybrid	-	-	-	1	13	5	12	9	40	8	6	54	0	-16	-15	9	
Ford Crown Victoria CNG	-	-	1	-	-	-	-	-1	0	-	-	0	0	0	0	0	
Ford F150 CNG	-	-	6	-	-	-	-	0	6	-	-4	2	-2	-2	-2	0	
Toyota Camry	-	-	1	-	-	-	-	0	1	-	-	1	0	-1	-	0	
Ford Taurus	-	14	-	-	-	-	-	-4	10	-5	-4	1	0	-5	-5	0	
Ford Ranger	-	4	-	-	-	-	6	-2	8	-2	0	6	0	-4	-4	0	
Chevy Colorado	-	-	-	-	-	-	-	2	2	2	4	8	2	6	6	16	
Electric	-	-	-	-	-	-	-	-	0	3	-	3	3	38	36	77	
Total:	4	18	14	15	23	7	18	0	99	3	0	102	3	0	0	102	
Cost to replace	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	405,000	300,000	705,000	165,000	1,510,000	1,440,000	3,115,000	
Charging Station	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22,000	209,000	198,000	429,000	
Power Supply	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	400,000	N/A	N/A	400,000	
Total													422,000	209,000	198,000	829,000	
Grand Total													587,000	1,719,000	1,638,000	3,944,000	

Assumptions -
 Must use City Fleet Contracts
 Purchase Price with Tax for Electric Vehicles is \$35,000, All other cost \$30,000
 HACTO waiver requiring reduction of fleet is approved
 Vehicles purchased in FY 2012-13 will not be replaced
 Assume \$11,000 per charging station for 1:2 station to electric/hybrid vehicle ratio.