



BOARD OF SUPERVISORS
AGENDA LETTER

Agenda Number:

Clerk of the Board of Supervisors
105 E. Anapamu Street, Suite 407
Santa Barbara, CA 93101
(805) 568-2240

Department Name: General Services
Department No.: 063
For Agenda Of: March 19, 2019
Placement: Departmental
Estimated Tme: 30 minutes
Continued Item: No
If Yes, date from: N/A
Vote Required: Majority

TO: Board of Supervisors

FROM: General Services Janette D. Pell, Director (805) 560-1011
Contact Info: Skip Grey, Assistant Director (805) 568-3083

SUBJECT: Electric Vehicle Update

County Counsel Concurrence

As to form: N/A

Other Concurrence:

As to form: N/A

Auditor-Controller Concurrence

As to form: N/A

Recommended Actions:

That the Santa Barbara County Board of Supervisors:

- a) Receive and file the Santa Barbara County Electric Vehicle Report;
- b) Provide direction to staff to further investigate options and associated costs for reducing County Fleet fuel usage and Greenhouse Gas Emissions; and
- c) Determine that the proposed actions are not a “project” as defined by the California Environmental Quality Act (CEQA) Guidelines Section 15378(b) (5), as it is an administrative activity that will not result in direct or indirect changes in the environment.

Summary Text:

At the December 11, 2018 hearing, as part of the 2017 Energy Climate and Action Plan update, the Board of Supervisors directed General Service’s staff to report back to the Board with a report on the electrification of the County vehicle fleet including cost information. This report provides preliminary costs and alternatives to reduce greenhouse gas emissions associated with the purchase of electric vehicles (EVs), and the associated charger network. It also considers hybrid vehicles as a replacement option. The report provides a rough order of magnitude of the cost of replacing eligible gasoline vehicles with both of these alternatively fueled vehicle options. It also provides potential estimates of the reduction in greenhouse gases and fuel savings.

Background:

Over the past five years, General Services has endeavored to “green” the County’s fleet. Since 2013, miles driven on County vehicles has increased by 10.9% (mainly due to increased mileage driven by Fire and Sheriff) while over the same period, fuel usage has been held to a 7.3% growth. The following is a summary of actions taken to reduce fuel use and emissions:

- 2011 - Implemented County Vehicle and Equipment Anti-Idling Policy to include all light duty vehicles.
- 2012 - First EV charging stations installed. Currently have 33 chargers at eight locations throughout the County including several fast chargers.
- 2013 - Established ECAP Fleet vehicle replacement policy directing that 5% of every annual vehicle order will be comprised of an alternatively fueled vehicle class.
- April 2014 - Acquired four all-electric vehicles for motor-pool use. Introduction of alternatively fueled vehicles began in 2002, to date the county has owned 48 Hybrid and 5 All-Electric vehicles.
- May 2014 - General Services transitioned 100% from petroleum based ULS Diesel fuel to Renewable Diesel fuel. Renewable Diesel meets the performance standards of conventional Clear Diesel but is refined from 100% renewable raw materials.
- June 2014 - Installed smart idle technology into the Sheriff Patrol fleet. Patrol Sedan class average MPG improvement from 10.9 to 12.1 (2018).
- January 2015 – General Services adopts policy to ensure vehicles are “right sized”, optimize fuel efficiency, and when economically feasible, hybrid or alternatively fueled vehicles are purchased.

To continue the ongoing efforts to make the County’s Vehicle Fleet cleaner and more efficient, General Services has recently been evaluating the feasibility of replacing a portion of the County’s vehicle fleet with zero emission electric vehicles or lower emission hybrid vehicles as gas combustion engine vehicles are retired. The goal has been to identify vehicles that could best be replaced by EVs or hybrids, focusing on gas vehicles due for replacement. Approximately 240 of the 965 Light Duty categorized County fleet vehicles would be eligible to be replaced with full electric or standard hybrid vehicles in the upcoming vehicle procurement cycles. These include sedans (passenger vehicles) only, and do not include any emergency vehicles, trucks, heavy equipment, or existing hybrid vehicles. Eligible existing vehicles would be replaced with all electric or hybrid models when they are fully depreciated and reach 100,000 miles of usage. Of these 240 sedans, 124 are projected to reach 100,000 miles over the next five years based on current usage and driving patterns.

This analysis assumes that vehicle usage (annual miles driven) will continue as it has in the past. Currently the annual mileage of this group of vehicles averages approximately 13,000 miles per year each. The cost of a standard hybrid vehicle is assumed to be approximately \$24,000. It also assumes that the new EVs purchased will have a range of between 100 miles (short range) and 250 miles (long range) per charge and will cost approximately \$28,000 to \$33,000 each after rebates and incentives. Typical EV models would be the Nissan Leaf (short range model) and the Chevrolet Bolt or Hyundai Kona (long range models). The price ranges mentioned above are averages and assume the cost of the vehicles purchased will increase by 3% over the five year period. Note that final cost of the vehicles will not be known until a formal bid or RFP is issued and responded to and depends on what rebates and incentives are available at the time of purchase. Price points used in this analysis are averages and may end up being lower. If directed to proceed, staff will endeavor to seek out the lowest prices and take advantage of all available rebates and

incentives. Once the Board provides further direction, staff will also evaluate various mixes of Hybrid, short range EVs (utilized for local trips), and long range EVs and the associated costs. For example, a mix of 50% short range EVs, 30% long range EVs and 20% Hybrids could be analyzed.

Exact vehicle charging station locations have not yet been determined but it is assumed that a new vehicle charging unit will service two EVs. Therefore the one time initial cost of installing a charging station will be approximately \$7,000 per vehicle based on historical costs of previous installed County chargers. Maintenance, depreciation, and subscription fees for each charger will average approximately \$700 annually.

Four potential strategies were reviewed including;

- 1) The Board may choose to continue current practice in accordance with the Board approved vehicle replacement policy, that 5% of every annual vehicle order will be comprised of an alternatively fueled vehicle class. Staff will continue to attempt to exceed that goal.
- 2) Replacing 100% of all 124 gas vehicles with EVs over the next five years as they hit the 100,000 mile threshold. (Two options – replace with all short range EVs, or all long range EVs)
- 3) Replacing 100% of all 124 gas vehicles with standard hybrid vehicles over the next five years as they hit the 100,000 mile threshold.
- 4) Finally, an option of replacing 100% of all 124 gas vehicles with some combination of EV and standard hybrid vehicles over the next five years as they hit the 100,000 mile threshold. (For example, the approximate cost of a mix of 20% Hybrid, 50% short range EV, and 30% long range EV would total \$1.6 million.)

The costs and potential rough estimate of savings and GHG reductions (units are metric tons of CO2) for an ALL ELECTRIC replacement strategy are summarized as follows:

Fiscal Year	# Vehs Expected to be Replaced	Net	Net	GHG Reduction Switching to EVs
		Incremental Cost of Shorter Range EVs After Fuel Savings	Incremental Cost of Long Range EVs After Fuel Savings	
FY19-20	55	\$600,271	\$792,771	245
FY20-21	20	\$253,813	\$325,913	92
FY21-22	16	\$261,569	\$320,980	61
FY22-23	20	\$350,138	\$426,629	84
FY23-24	13	\$298,656	\$349,866	42
	124	\$1,764,447	\$2,216,159	524

The costs and potential rough estimate of savings and GHG reductions (units are metric tons of CO2) for an ALL HYBRID replacement strategy are summarized as follows:

Fiscal Year	# Vehs Expected to be Replaced	Net Incremental	
		Cost of Hybrids After Fuel Savings	GHG Reduction Switching to Hybrids
FY19-20	55	\$98,814	115
FY20-21	20	\$23,710	43
FY21-22	16	\$43,701	29
FY22-23	20	\$71,616	39
FY23-24	13	\$73,531	20
	124	\$311,372	247

The approximate cost of a strategy that provides a mix of Hybrid, short range EVs, and long range EVs, is as follows:

Vehicle Type	Incremental Net Cost per Vehicle	% of 124 Eligible Vehicles	# Vehicles Replaced	Approximate Cost
Hybrid	\$2,500	20%	25	\$62,000
Short Range EV	\$14,200	50%	62	\$880,400
Long Range EV	\$18,000	30%	37	\$669,600
			124	\$1,612,000

Note that Net Incremental Cost in the tables above is the cost differential of the purchase price between the new vehicle (EV or hybrid) and the gas vehicle it replaces. It also takes into account the fuel savings which will reduce the overall cost of operation and, in the case of EVs, it considers the cost of additional chargers needed to charge the vehicles. The hybrid vehicle is considered to be a standard hybrid and will not require charging infrastructure. Approximate incremental net costs for each vehicle type are shown below (these are a 5 year average of the tables above).

Vehicle Type	New Vehicle Purch Price	Add Charger Cost	Less Vehicle Repl Fund Contribution	Less Fuel Savings per Vehicle	Incremental Net Cost per Vehicle
Gasoline	\$20,000	\$0	(\$20,000)	\$0	\$0
Hybrid	\$24,000	\$0	(\$20,000)	(\$1,500)	\$2,500
Short Range EV	\$29,200	\$7,700	(\$20,000)	(\$2,700)	\$14,200
Long Range EV	\$33,000	\$7,700	(\$20,000)	(\$2,700)	\$18,000

It is recommended an incremental phase-in of any addition of Electric Vehicles is the best approach as the technology advances. In the event that vehicle types we select unexpectedly become unreliable,

incorporating a uniform vehicle platform would negatively impact county services to a greater extent than with a blended fleet.

As part of the analysis, it was determined that the estimated cost to reduce one ton of CO₂ would be approximately \$1,200 for hybrid, \$3,300 for short range EVs, and \$4,200 for long range EVs vehicles. While the purchase of EVs help the County reduce emissions faster than the purchase of hybrid vehicles, the cost to do so is higher.

To summarize, the Board may choose to continue the current 5% replacement practice. It may choose to replace 124 gas vehicles over the next five years with all with short range EVs – net cost: \$1.7 million or long range electric models – net cost: \$2.2 million. Both EV options result in approximately 520 metric tons of CO₂ reduced. It may decide to replace 124 gas vehicles over the next five years with all Hybrid models – Net cost: \$0.31 million, approximately 240 metric tons of CO₂ would be reduced. Or, over the next five years, existing vehicles could be replaced with a mix of electric and hybrid models.

Performance Measure:

N/A

Key Contract Risks:

N/A

Staffing Impacts:

None

Special Instructions:

None

Attachments:

1. Electric Vehicle Update Presentation