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OFFICE OF CITY CLERK  
CITY OF SAN MATEO  
SAN MATEO, CA

August 12, 2019

City Council  
City of San Mateo  
330 West 20th Avenue  
San Mateo, CA 94403

Re: Grand Jury Report: "Electric Vehicle Adoption in the Cities and County of San Mateo"

Dear Councilmembers:

The 2018-2019 Grand Jury filed a report on August 12, 2019 which contains findings and recommendations pertaining to your agency. Your agency must submit comments, within 90 days, to the Hon. Donald J. Ayoub. Your agency's response is due no later than November 12, 2019. **Please note that the response should indicate that it was approved by your governing body at a public meeting.**

For all findings, your responding agency shall indicate one of the following:

1. The respondent agrees with the finding.
2. The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefore.

Additionally, as to each Grand Jury recommendation, your responding agency shall report one of the following actions:

1. The recommendation has been implemented, with a summary regarding the implemented action.
2. The recommendation has not yet been implemented, but will be implemented in the future, with a time frame for implementation.
3. The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a time frame for the matter to be prepared for discussion by the officer or director of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This time frame shall not exceed six months from the date of publication of the Grand Jury report.
4. The recommendation will not be implemented because it is not warranted or reasonable, with an explanation therefore.

Please submit your responses in all of the following ways:

1. Responses to be placed on file with the Clerk of the Court by the Court Executive Office.
    - Prepare original on your agency's letterhead, indicate the date of the public meeting that your governing body approved the response address and mail to Judge Ayoob.
- Hon. Donald J. Ayoob  
Judge of the Superior Court  
c/o Charlene Kreseovich  
Hall of Justice  
400 County Center; 2<sup>nd</sup> Floor  
Redwood City, CA 94063-1655.**
2. Responses to be placed at the Grand Jury website.
    - Copy response and send by e-mail to: [grandjury@sanmateocourt.org](mailto:grandjury@sanmateocourt.org). (Insert agency name if it is not indicated at the top of your response.)
  3. Responses to be placed with the clerk of your agency.
    - File a copy of the response directly with the clerk of your agency. Do not send this copy to the Court.

For up to 45 days after the end of the term, the foreperson and the foreperson's designees are available to clarify the recommendations of the report. To reach the foreperson, please call the Grand Jury Clerk at (650) 261-5066.

If you have any questions regarding these procedures, please do not hesitate to contact Paul Okada, Chief Deputy County Counsel, at (650) 363-4761.

Very truly yours,



Neal Taniguchi  
Court Executive Officer

NT:ck  
Enclosure

cc: Hon. Donald J. Ayoob  
Paul Okada

Information Copy: City Manager



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2019 AUG 15 A 11:34

## ELECTRIC VEHICLE ADOPTION IN THE CITIES AND COUNTY OF SAN MATEO

OFFICE OF CITY CLERK  
CITY HALL  
SAN MATEO, CA

### ISSUE

What steps have San Mateo County and its cities taken to reduce their greenhouse gas emissions by replacing 100 percent fossil-fueled government fleet vehicles with electric vehicles? What resources are available to the County and the cities to assist in converting their fleets to zero emission vehicles (ZEVs)?

### SUMMARY

Global warming and climate change are an everyday reality. California is a leader in trying to reduce greenhouse gas emissions. Sixty percent of greenhouse gas emissions in San Mateo County come from the transportation sector. Local government vehicle fleets are a relatively small part of that sector; however, the Grand Jury believes they are important in terms of setting an example for private industry and individuals to follow.

The Grand Jury surveyed the County and each of the 20 cities within the county to determine the extent to which they are converting their fleets to electric vehicles. The results of this survey show that approximately 31 percent of the County of San Mateo government fleet vehicles are electric vehicles. By comparison, the average of 20 cities in the County is about three percent. Eleven of the 20 cities have no electric vehicles in their fleets.

Purchase of electric vehicles has been cost prohibitive in the past, making it difficult for governments to justify the expense. Since 2009 when San Mateo County first discussed converting its fleet to electric vehicles, zero emissions vehicle technology has advanced, and costs of electric vehicles have dropped. As of 2019, the total life cycle cost, based on five years ownership, of a zero emissions vehicle is less than that for a comparable 100 percent fossil-fueled car. The cost savings may be as great as \$5,000 if the electric vehicle is eligible for certain rebates.

The Grand Jury recommends that the County and each of the cities in San Mateo County conduct a review of their government fleet procurement policies relating to electric vehicles, including an analysis of the obstacles to fleet conversion. The Grand Jury also recommends that the city governments and the County Department of Public Works review existing programs that could facilitate this analysis and the procurement of electric vehicles, including the Office of Sustainability's Roadmap for Municipal Green Fleets, which is a toolkit to assist local governments in replacing traditional gas powered fleets with electric fleet vehicles, and the Climate Mayors EV Purchasing Collaborative, which allows the coordination of a highly competitive contract aimed at saving time and money by combining the buying power of more than 50,000 government, education, and non-profit organizations.

## GLOSSARY<sup>1</sup>

- Greenhouse Gases (GHG): Any of various gaseous compounds, such as carbon dioxide and methane, that absorb infrared radiation and trap heat in the atmosphere contributing to the greenhouse effect and global warming.
- Government fleet: All vehicles owned or leased by a government entity for use by government employees including administrative, maintenance, police and emergency personnel.
- Fossil –Fueled Vehicles
  - PZEVs: 100 percent fossil-fueled, internal combustion engine (ICE), Partial Zero Emission Vehicles which are Super Ultra Low Emissions Vehicles that also have additional technology, such that their emissions are similar to a non-plug-in hybrid, such as the Honda Civic, the Ford Fiesta, and the Subaru Crosstrek.
  - AT PZEVs: Advanced Technology Partial Zero Emission Vehicles, which include non-plug-in hybrids, such as the Honda Accord Hybrid, the Toyota Camry Hybrid, and the Ford Fusion.
- Electric Vehicles
  - Enhanced AT PZEVs: Enhanced Advanced Technology Partial Zero Emissions Vehicles which include plug-in hybrid electric vehicles such as the Toyota Prius Prime, the Chevrolet Volt, and the Ford Fusion Energi.
  - ZEVs: Zero Emission Vehicles which include plug-in electric vehicles such as the Tesla Model 3, the Chevrolet Bolt, the Hyundai Ioniq, and electric carts.

## BACKGROUND

California is a leader in trying to reduce greenhouse gas emissions (GHG) associated with global heating. Forty percent of California's greenhouse gas emissions come from the transportation sector. In San Mateo County, the contribution from transportation is even higher at 60 percent, the largest contributor being solo driving.<sup>2</sup> Local government vehicle fleets are a relatively small part of that sector; however, the Grand Jury believes they are important in terms of setting an example for private industry and individuals to follow.

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<sup>1</sup> Definitions based on California Environmental Protection Agency, Air Resources Board, Frequently Asked Questions: The California Zero Emission Vehicle Regulation, July 2011.  
[https://www.arb.ca.gov/msprog/zevprog/factsheets/zev\\_fs.pdf](https://www.arb.ca.gov/msprog/zevprog/factsheets/zev_fs.pdf)

<sup>2</sup> Time to Act on Climate Change, Twenty-second Annual Report. [www.SustainableSanMateo.org](http://www.SustainableSanMateo.org)

## State Actions

With nearly half of the state's greenhouse gas emissions coming from the transportation sector, California has made significant investments to encourage adoption of zero emission vehicles, including expanding the network of charging stations and providing rebates that lower the price of new cars by thousands of dollars.<sup>3</sup>

In 2018, the Governor set a goal of reaching five million ZEVs on California's roadways by 2030, and 250,000 public chargers by 2025.<sup>4</sup> As of mid-2018, Californians were driving over 400,000 ZEVs out of 25 million registered passenger vehicles in California (1.6 percent). San Mateo County has 26,894 electric vehicles (Enhanced AT PZEVs and ZEVs) registered<sup>5</sup>, which is 4.2 percent of all registered vehicles; 8,229 were ZEVs.<sup>6</sup>

The state has passed the California Renewables Portfolio Standards Program SB 100 (2018) that mandates that all electricity be 100 percent renewable by 2045, ensuring that electric vehicles will be powered by clean energy sources.

In October 2016, the Governor of California released the 2016 ZEV Action Plan, which in part established new goals for state government fleet ZEV purchases, so that 50 percent of annual light-duty fleet purchases will be ZEV by 2025.<sup>7</sup> While the state is addressing greenhouse gases and electrification of state vehicle fleets, there have been few measures directed to electrification of county or municipal fleets.

## County Actions

In 2011, the Grand Jury investigated the County's 2008 Vehicle Purchase Program in which the San Mateo County Board of Supervisors resolved that "...all future [compact and midsize county] vehicle purchases will be hybrid models or other fuel-efficient models that are estimated by the manufacturer to achieve a minimum of thirty miles to the gallon."<sup>8,9</sup> This program includes a policy of replacing fleet vehicles after seven years or 100,000 miles.<sup>10</sup> According to the San Mateo County Department of Public Works, which oversees the County's fleet, the Board of Supervisors' resolution calls for an annual review of the 30 mpg standard. The policy

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<sup>3</sup> Koseff, Alexei, "Brown deems Trump 'liar, criminal, fool' on environment, signs electric vehicle bills", The Sacramento Bee, September 13, 2018. <https://www.sacbee.com/news/politics-government/capitol-alert/article218362510.html>

<sup>4</sup> Lazo, Alejandro, "California Gov. Jerry Brown Calls for Five Million Zero-Emission Cars by 2030", Wall Street Journal, January 26, 2018. <https://www.wsj.com/articles/california-gov-jerry-brown-to-call-for-five-million-zero-emission-cars-by-2030-1516996404>

<sup>5</sup> <https://smcenergywatch.org/electric-vehicle-adoption-in-san-mateo-county/>

<sup>6</sup> Sustainable San Mateo County "Time to Act on Climate Change", Indicators Report 2018. [www.sustainablesanmateo.org](http://www.sustainablesanmateo.org) May 4, 2018

<sup>7</sup> State Administrative Manual Memorandum MM 16-07. [https://www.documents.dgs.ca.gov/osp/sam/memos/MM16\\_07.pdf](https://www.documents.dgs.ca.gov/osp/sam/memos/MM16_07.pdf)

<sup>8</sup> San Mateo County Board of Supervisors, "Resolution No. 069650", September 9, 2008.

<sup>9</sup> San Mateo County Civil Grand Jury 2010-2011, "San Mateo County's Vehicle Purchase Program", 2011. [https://www.sanmateocourt.org/documents/grand\\_jury/2010/hybrid\\_vehicles.pdf](https://www.sanmateocourt.org/documents/grand_jury/2010/hybrid_vehicles.pdf)

<sup>10</sup> Ibid.

itself has not been updated and the fuel efficiency requirement has not been increased above 30 mpg.<sup>11</sup>

## **Climate Action Plans**

Since enactment of the California Global Warming Solutions Act of 2006 (AB 32), many local jurisdictions in California have adopted “Climate Action Plans” (CAPs). CAPs are documents that identify methods that local jurisdictions such as the cities and County can implement to significantly reduce GHG emissions as a first step toward meeting the requirements mandated by AB 32, which required a GHG reduction of 15 percent below 2005 levels by 2020. While such plans are not mandated, the County of San Mateo and 16 cities in the county have adopted them. Due to greenhouse gas emissions from transportation, CAPs include a section that discusses the status of greenhouse gas contribution from this sector and policies meant to reduce them. For purposes of this report, the Grand Jury reviewed the CAPs for the County and the cities that have them to determine whether the electrification of government fleets was addressed.<sup>12</sup>

## **DISCUSSION**

The Grand Jury investigated what San Mateo County and the 20 cities within the county are doing to reduce their GHG emissions by converting their fleets to electric vehicles.

### **Grand Jury Survey**

In December 2018, the Grand Jury surveyed each of the cities and the County (see Appendix A for form of the survey). The responses are summarized in Table 1. The survey results show that, as of the date of the survey, 11 of the 20 cities have no electric vehicles (as defined in the glossary) in their fleets. These are: Atherton, Belmont, Colma, Daly City, East Palo Alto, Half Moon Bay, Hillsborough, San Bruno, San Carlos, South San Francisco, and Woodside. In contrast, two of the cities (Burlingame and Foster City) have converted one percent of their fleet to electric vehicles, three of the cities (Pacifica, Redwood City, and San Mateo) have reached three percent, the City of Millbrae has reached seven percent, and two cities (Brisbane and Menlo Park) have reached ten percent. Of interest is that although not having a Climate Action Plan, the Town of Portola Valley has moved forward with converting a third (two out of six) of its fleet to electric vehicles.

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<sup>11</sup> Email from SMC Department of Public Works

<sup>12</sup> Links to each of the CAPs are given in the bibliography.

**Table 1: Cities and County of San Mateo Electric Fleet Vehicles (December 2018)**

Cities/ County of San Mateo	# of Fleet Vehicles			Have Climate Action Plan? (Year*)	Climate Action Plan Discusses Government Fleet Electric Vehicles
	Total	Electric	% Elec		
Atherton	20	0	0%	Yes (2016)	Yes
Belmont	106	0	0%	Yes (2017)	Yes
Brisbane	23	2	9%	Yes (2015)	Yes
Burlingame	115	1	1%	Yes (2009)	Yes
Colma	27	0	0%	Yes (2013)	No
Daly City	26	0	0%	Yes (2010)	No
East Palo Alto	73	0	0%	Yes (2011)	Yes
Foster City	86	1	1%	Yes (2015)	Yes
Half Moon Bay	8	0	0%	No	No
Hillsborough	67	0	0%	Yes (2010)	No
Menlo Park	110	11	10%	Yes (2009)	Yes
Millbrae	58	4	7%	No	No
Pacifica	96	2	2%	Yes (2014)	Yes
Portola Valley	6	2	33%	No	No
Redwood City	240	6	3%	Yes (2013)	Yes
San Bruno	129	0	0%	No	No
San Carlos	49	0	0%	Yes (2009)	Yes
San Mateo	243	8	3%	Yes (2015)	Yes
South San Francisco	200	0	0%	Yes (2014)	No
Woodside	3	0	0%	Yes (2015)	No
<b>Cities Total</b>	<b>1,685</b>	<b>37</b>	<b>2%</b>	<b>16 Yes</b>	<b>11 Yes</b>
<b>County of San Mateo</b>	<b>709</b>	<b>220</b>	<b>31%</b>	<b>Yes (2012)</b>	<b>Yes</b>

\* Year shown is date of document that references electric vehicles, if any

Combined, about two percent of the 20 municipalities' fleet vehicles are electric vehicles. By contrast, electric vehicles comprise approximately 31 percent of the total County of San Mateo government fleet.

As noted in Table 1, eleven of the cities and the County have as part of their CAP a section pertaining to converting their government fleets to fuel efficient vehicles (hybrid, electric, alternative fuel). These cities are: Atherton, Belmont, Brisbane, Burlingame, East Palo Alto, Foster City, Menlo Park, Pacifica, Redwood City, San Carlos, and San Mateo. Five cities

(Colma, Daly City, Hillsborough, South San Francisco, and Woodside) have CAPs that do not discuss conversion of fleet vehicles, to fuel-efficient vehicles and four cities (Half Moon Bay, Millbrae, Portola Valley, and San Bruno) have no Climate Action Plan.

In reviewing the cities' and County's CAPs as related to the conversion of fleet vehicles to electric vehicles, the Grand Jury finds that those cities, and the County, that include this discussion in their CAP vary in the strength of their approach. As noted above, the County already had a Fuel Efficient County Vehicle Purchasing Policy prior to developing their CAP, and this is emphasized in their document. Four of the cities (Atherton, Belmont, Burlingame, and Pacifica) describe policies to prioritize purchase of electric and alternative fuel vehicles, sometimes referred as a Sustainable Purchasing Policy, which are proposed for adoption by the city governments.

For the remaining seven cities, the wording in the CAPs propose specific actions rather than an overall policy. The CAPs of the cities of Brisbane and East Palo Alto suggest that their cities participate in a car-sharing program that has electric vehicles. The CAP from Menlo Park says that "one or several neighborhood electric vehicles could be purchased or leased."<sup>13</sup> The CAPs from Foster City and San Mateo call for the cities to replace gasoline powered vehicles or conventional hybrids with low emissions vehicles, "as available and cost effective".<sup>14</sup> The 2009 CAP from San Carlos is specific about the number of vehicles to be replaced by 2020 stating that, "The City has approximately 18 vehicles between the Public Works, Parks and Recreation, and Building Departments that have the possibility of being replaced in the future with alternative fuel or hybrid technology."<sup>15</sup> And the CAP from Redwood City mentions that by 2013, 83 percent of all City sedans in Redwood City were hybrids and the Parks and Police Departments had three fully electric vehicles. Of particular note, the action recommended in Redwood City is headed, "Lead by Example – promote fuel-efficient and alternative fuel vehicles in the community by using the City's fleet as an example."<sup>16</sup>

As described above, there is a wide variation among local jurisdictions in San Mateo County in terms of their government fleet electric vehicle procurement policies. In this report, the Grand Jury has not investigated the reasons why local jurisdictions have adopted their specific policies, or no policy.

It should be noted that some CAPs were drafted and adopted prior to 2010, when electric vehicles were not widely available, some have been reviewed and revised since 2015, one city is currently working on an updated CAP, and one city has a draft 2030 plan.

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<sup>13</sup> City of Menlo Park, Climate Action Plan Update and Status Report, 2009

<http://worldcat.org/arcviewer/7/CBG/2013/04/17/H1366238244214/viewer/file1.pdf>

<sup>14</sup> City of San Mateo, Climate Action Plan, April 2015.

<https://www.cityofsanmateo.org/DocumentCenter/View/65426/San-Mateo-CAP---Adopted?bidId>

<sup>15</sup> City of San Carlos, Climate Action Plan, October 12, 2009

<https://www.cityofsancarlos.org/government/departments/city-manager-s-office-communications/responsible-environment/climate-action-plan>

<sup>16</sup> City of Redwood City Community Climate Action Plan [https://www.ca-ilg.org/sites/main/files/file-attachments/redwood\\_city\\_community\\_climate\\_action\\_plan.pdf](https://www.ca-ilg.org/sites/main/files/file-attachments/redwood_city_community_climate_action_plan.pdf)



## Sources of Financial and Technical Assistance

In October 2018, the San Mateo County Office of Sustainability received a grant for one year from Peninsula Clean Energy to develop a *Roadmap for Municipal Green Fleets*.<sup>17</sup> This is a clean fuel toolkit to assist local governments in replacing traditional gas powered fleets with electric fleet vehicles. This toolkit includes sources of technical assistance for local governments interested in strategic planning of their fleet electrification efforts.<sup>18</sup> The grant includes funding to support up to four cities initially in utilizing the toolkit through December 2019.

The Office of Sustainability is currently soliciting feedback from cities on whether there is interest to adopt an EV First Policy.<sup>19</sup> If there is interest from the city and County leadership, the Office of Sustainability will draft a policy based on the one adopted by the City and County of San Francisco in 2017. San Francisco's EV First policy "requires that any new passenger vehicle procured for the City fleet be a Zero Emission Vehicle, absent a waiver, and that all passenger vehicles in the City fleet be Zero Emission Vehicles by December 31, 2022; and to encourage selection of Zero Emission Vehicles in other vehicle classes as technology improves."<sup>20</sup>

On September 11, 2018, the *Climate Mayors EV Purchasing Collaborative* was launched. Cities from around the U.S. announced a large-scale commitment to electrify their municipal fleets. One founder stated, "This process allows the coordination of a highly competitive contract aimed at saving your fleet time and money by combining the buying power of more than 50,000 government, education, and non-profit organizations. The vehicles in your fleet need to meet the use needs of your company and staff, and the Cooperative EV Purchasing Collaborative is designed with products and services to fit your needs."<sup>21</sup>

"The Collaborative represents unprecedented cooperation among Climate Mayors cities across the country to leverage their collective buying power and accelerate the conversion of public fleets to [electric vehicles]... It is a turnkey, one-stop, online procurement portal providing U.S. cities, counties, [and] state governments... equal access to competitively bid [electric vehicles] and charging infrastructure, innovative financing options, and best practices and other forms of expertise."<sup>22</sup>

The California Air Resources Board (CARB) has the Clean Vehicle Rebate Project (CVRP) which is designed to promote the purchase of battery electric, plug-in hybrid electric, and other electric vehicles. Rebates of up to \$7,000 per light-duty vehicle are available for individuals, nonprofits, government entities, and business owners who purchase or lease an eligible vehicle. Public agencies are eligible for up to 30 vehicle rebates annually. Some fleets may qualify for

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<sup>17</sup> Peninsula Clean Energy Pilot Program, <https://www.peninsulacleanenergy.com/community-pilots/> Peninsula Clean Energy (PCE) is San Mateo County's official electricity provider. It awarded grants through its Community Pilot Program of up to \$75,000 each for six innovative local pilot projects to reduce greenhouse gas emissions.

<sup>18</sup> Office of Sustainability, *Roadmap for Municipal Green Fleets*. <https://www.smcsustainability.org>

<sup>19</sup> Grand Jury Correspondence with San Mateo County Office of Sustainability.

<sup>20</sup> City and County of San Francisco Ordinance #115-17.

(<https://sfgov.legistar.com/View.ashx?M=F&ID=5205705&GUID=5B001FFA-9629-43BC-B1EC-B348B76F8B29>)

<sup>21</sup> "Commitment to Electrification", <https://driveevfleets.org/#>

<sup>22</sup> Ibid.

increased incentives if located within a California disadvantaged community census tract.<sup>23</sup> Current rebate statistics are available on the website of the Center for Sustainable Energy (CSE).<sup>24</sup>

### **Why Now is the Time to Convert Government Fleets to ZEVs**

Even those cities whose Climate Action Plans include proposed electric vehicle fleet procurement policies have not fully implemented them (see Table 1, last column vs. # of Fleet Vehicles). San Carlos, for example, has a strong and specific policy but has purchased no electric vehicles. In this report, the Grand Jury has not investigated the specific reasons each city may have for not implementing electric vehicle procurement policies. The following section reviews the general obstacles that local governments have encountered in the past and their current status in 2019.

“The California Air Resources Board first adopted the ZEV mandate in 1990 as part of the Low-Emission Vehicle regulation...whose goals were to accelerate industry investment in ZEV technology, discourage industry procrastination, establish initial supply chains, and signal to the many related companies and governments that they should be engaging sooner and more deeply with the transition to ZEVs.”<sup>25</sup> This was 18 years before the first commercially successful ZEV was sold to the public.<sup>26,27</sup>

In 2013, the National Research Council identified the main obstacles to public adoption of ZEVs as:

- Lack of Customer Knowledge about ZEVs,
- High Purchase Price,
- Limited Driving Range,
- Limited Model Choice,
- Lack of Dealer/Mechanic Knowledge about ZEVs,
- Lack of Charging Infrastructure,
- Lack of Standardization of Charging Infrastructure, and
- Lack of Access to 100 percent Renewable Electricity.<sup>28</sup>

Since 2013, many of these obstacles have been greatly reduced. Several more ZEV models have been introduced to the market and costs have come down to a large extent due to a significant

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<sup>23</sup> According to Get Healthy San Mateo County, November 2017 Newsletter, “Implications of the Planning for Healthy Communities Act for San Mateo County”, portions of East Palo Alto, Redwood City, South San Francisco, Millbrae, San Bruno and unincorporated North Fair Oaks are “disadvantaged community census tracts.” <https://www.gethealthysmc.org/newsletter/november-2017-newsletter>

<sup>24</sup> CVRP Rebate Statistics Webpage

<sup>25</sup> Scott Hardman, et al., “Driving the Market for Plug-in Vehicles: Understanding ZEV Mandates”, <https://phev.ucdavis.edu/wp-content/uploads/zev-mandates-policy-guide.pdf>

<sup>26</sup> U.S. Department of Energy, “The History of the Electric Car”, September 2014. <https://www.energy.gov/articles/history-electric-car>

<sup>27</sup> Tesla website, “About Tesla”, <https://www.tesla.com/about>

<sup>28</sup> National Research Council, “Overcoming Barriers to Electric-Vehicle Deployment”, 2013. <http://gabrielse.physics.harvard.edu/gabrielse/papers/2013/OvercomingBarriersToElectricVehicleDeployment.pdf>

drop in battery prices.<sup>29</sup> In San Mateo County, both Pacific Gas & Electric and Peninsula Clean Energy both offer 100 percent renewable electricity plans.<sup>30,31</sup>

“Most modern chargers and vehicles have a standard connector and receptacle, called the SAE J1772. Any vehicle with this plug receptacle can use any Level 1 [120 volt AC] or Level 2 [240 volt AC] EVSE. All major vehicle and charging system manufacturers support this standard.”<sup>32</sup> And recently, “SAE International, an engineering standards-setting organization, has passed a standard for fast charging that adds high-voltage DC power contact pins to the SAE J1772 connector,”<sup>33</sup> so standardization of charging infrastructure should soon no longer be a concern.

As with individuals who purchase ZEVs, city and county governments will need to install charging infrastructure for their fleets. The cost of installing a charging facility ranges widely depending on the number of charging ports, the level of the charger, whether the units are networked for monitoring and/or billing purposes, and the proximity to existing electrical infrastructure.<sup>34</sup> However, in considering the useful range of their ZEVs, cities in San Mateo County should also take into account that there are currently 1,645 public charging stations in San Mateo County that could be used by government vehicles if they are in danger of running out of power before being able to return to their base charging location.<sup>35</sup>

Even with all of these advances, in January 2019 Forbes Magazine listed the four lingering obstacles that purchasers of ZEVs, both public and private, contend with as perceived cost, range anxiety, driver understanding, and dealer understanding.<sup>36</sup> Driver and dealer understanding of ZEVs will come with greater education of the public, and the Grand Jury hopes that this report will contribute to that education. Retraining of mechanics to work on ZEVs is also a consideration, especially for government employees. However, according to the San Mateo County Department of Public Works, “This doesn’t present a problem and...mechanics are being trained on servicing of the EVs.”<sup>37</sup>

“By a margin, the largest reason that consumers have avoided purchasing an electric car is range anxiety. That is, 58 percent of drivers are afraid that they will run out of power before being able

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<sup>29</sup> Supra, Note 26

<sup>30</sup> Pacific Gas & Electric website, “Solar Choice program costs”. [https://www.pge.com/en\\_US/residential/solar-and-vehicles/options/solar/solar-choice/rate-calculator.page](https://www.pge.com/en_US/residential/solar-and-vehicles/options/solar/solar-choice/rate-calculator.page)

<sup>31</sup> Peninsula Clean Energy website, “Where PCE’s Power Comes From”. <https://www.peninsulacleanenergy.com/energy-sources/>

<sup>32</sup> U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, “Vehicle Charging”. <https://www.energy.gov/eere/electricvehicles/vehicle-charging>

<sup>33</sup> Ibid.

<sup>34</sup> New York State Energy Research and Development Authority, “Charging Station Installation Analysis: Tompkins County Plug-in Electric Vehicle Infrastructure Plan”, February 2017. <http://tompkinscountyny.gov/files2/itctc/projects/EV/Tompkins%20EVSE%20Installation%20Analysis%20FINAL.pdf>

<sup>35</sup> San Mateo County Datahub, “Electrical Vehicle Charging Stations”. <https://datahub.smcgov.org/Transportation/Electric-Vehicle-Charging-Stations/k4h3-yhwc>

<sup>36</sup> Jeff McMahon, “The 4 Lingerin Obstacles To Electric Vehicle Adoption (And What Might Overcome Them)”, Forbes, January 27, 2019. <https://www.forbes.com/sites/jeffmcmahon/2019/01/27/the-4-lingering-obstacles-to-electric-vehicle-adoption-and-what-might-overcome-them/#2224ba695c54>

<sup>37</sup> Grand Jury communication.

to charge their vehicle, while another 49 percent fear the low availability of charging stations.”<sup>38</sup> In considering whether and when to convert government fleets in San Mateo County, the Grand Jury directs attention to the large number of public charging stations in the County mentioned above.

For all of the advances in technology, education, and infrastructure availability, a consistent theme in the CAPs and literature reviewed by the Grand Jury is the perceived cost of ZEVs versus 100 percent fossil-fueled cars and the importance of feasibility and cost effectiveness.

Choosing a ZEV over a conventional, internal combustion engine (ICE) vehicle can result in significant long term savings. ZEVs “cost less than half as much to operate as gas powered cars.”<sup>39</sup> “The average cost to operate a ZEV in the US is \$485 a year while the average for a gasoline powered vehicle is \$1,117.”<sup>40</sup>

The average price for a gallon of gasoline in California is \$3.95 (May 2019). The average cost for electricity per gallon equivalent during the daytime is \$1.80.<sup>41</sup> Fueling electric vehicles at night (off peak) would cost even less.<sup>42,43</sup>

Maintenance cost for ZEVs is also lower because they have “fewer moving parts, no exhaust system, less need for cooling, less abrasive braking options and no need to change engine oil, coolant, transmission fluids, air filters, timing belts, head gaskets, cylinder heads and spark plugs.”<sup>44</sup> The largest maintenance expense of a ZEV is the battery pack.<sup>45</sup> ZEV batteries are drained and recharged constantly but some manufacturers will cover replacement with a battery warranty (such as for the Nissan Leaf, Chevrolet Bolt, and Tesla Model S).<sup>46</sup>

In order to show how all of these factors result in a one-to-one cost comparison, an example lifecycle cost analysis of a ZEV as compared to a comparable internal combustion engine vehicle of the size used by the County of San Mateo is provided in Table 2. This analysis is based on a calculation available on the website of PG&E, but the values have been modified to reflect the rates and conditions that would be experienced by governments in San Mateo County.<sup>47</sup> For

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<sup>38</sup> Rob Stumpf, “Americans Cite Range Anxiety, Cost as Largest Barriers for New EV Purchases: Study”, The Drive, February 26, 2019. <https://www.thedrive.com/news/26637/americans-cite-range-anxiety-cost-as-largest-barriers-for-new-ev-purchases-study>

<sup>39</sup> University of Michigan’s Transportation Research Institute 2018 Study Report No. SWT-2018-1.

<sup>40</sup> Ibid.

<sup>41</sup> “egallon: What it is and Why it is Important” Department of Energy’s egallon. [www.energy.gov](http://www.energy.gov)

<sup>42</sup> Ibid.

<sup>43</sup> Note egallon and miles per gallon (MPGe) is a measurement of the cost to drive a comparable vehicle the same distance you could go on a gallon of gasoline. MPGe is a measurement of how efficiently a vehicle uses energy based on the number of British Thermal Units (BTUs) in the fuel.

<sup>44</sup> Jeff McMahon, “Electric Vehicle Cost Less Than Half as Much to Drive”, Forbes, January 14, 2018. <https://www.forbes.com/sites/jeffmcmahon/2018/01/14/electric-vehicles-cost-less-than-half-as-much-to-drive/#45d1708e3f97>

<sup>45</sup> Ibid.

<sup>46</sup> “Costs and Benefits of Electric Cars vs. Conventional Vehicles”, November 15, 2018 <https://www.energysage.com/electric-vehicles/buyers-guide/battery-life-for-top-evs/>

<sup>47</sup> Pacific Gas & Electric Company, “Welcome to the EV Savings Calculator”. <https://ev.pge.com/>

purposes of this calculation, it is assumed that the vehicles would be driven 20,000 miles per year and resold after 100,000 miles (five years).

This analysis shows that with rebates currently in place, the total life cycle cost over five years for a ZEV is up to \$5,000 less than that of a comparable ICE driven car, and that even if the electricity cost were to double or the rebate was not available the total cost would still be less than that of the ICE car. Cities are encouraged to perform their own analyses. Therefore, the Grand Jury believes that now is the time to convert government fleets to ZEVs.

**Table 2**  
**5-Year (100,000 Mile) Life Cycle Cost Comparison of**  
**Chevrolet Bolt ZEV to Toyota Camry ICE XLE/XSE**

2019			
Description	Chevrolet Bolt EV	2019 Toyota Camry XLE	Comments
<b>Summary of Results</b>			
Vehicle Purchase/Resale	\$22,676	\$20,058	Vehicle MSRP * (1 + Sales Tax) - Rebate - (Resale Value Percent * MSRP)
Total Electricity Cost	\$5,040	NA	Electricity Cost * Electricity Use * Mi/Yr * Number of Years
Total Gasoline Cost	NA	\$11,618	Gasoline Cost * Mi/Yr * Number of Years MPG
Total Maintenance Cost	\$3,174	\$5,749	Maint. Cost per Mile * (1 - EV Cost Reduction) * Mi/Yr * Number of Years
Total Insurance Cost	\$8,639	\$8,288	Insurance Cost per Year * Number of Years
<b>TOTAL 5-Yr Cost</b>	<b>\$39,529</b>	<b>\$45,712</b>	

2019			
Description	Chevrolet Bolt EV	2019 Toyota Camry XLE	Comments
<b>Input Parameters</b>			
Seats	5	5	Manufacturer Specification
Passenger Volume (cu.ft.)	94	100	Manufacturer Specification
Interior Cargo Volume (cu.ft.)	16.9	14.1	Manufacturer Specification
Type	Mid-Size	Mid-Size	Passenger+Cargo Volume 110 to 119 cu.ft. <sup>48</sup>
MSRP	\$36,620	\$29,175	Manufacturer's Suggested Retail Price
CARB EV Rebate	\$2,500	NA	California Air Resource Board <sup>49</sup>

<sup>48</sup> U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, "How are Vehicle Size Classes Defined". <https://www.fueleconomy.gov/feg/info.shtml#size-class>

<sup>49</sup> California Environmental Protection Agency, Air Resources Board, Clean Vehicle Rebate Project, "For Public Fleets". <https://cleanvehiclerebate.org/eng/fleet>

**Table 2 (continued)**

Description	2019	2019	Comments
	Chevrolet Bolt EV	Toyota Camry XLE	
Input Parameters (cont.)			
Electricity Cost (\$/kWh)	\$0.18	NA	E-19 SV Rate from PCE, 100% ECO <sup>50</sup>
Electricity Use (kWh/mile)	0.28	NA	EPA Efficiency Rating <sup>51</sup>
Gasoline Cost (\$/gal)	NA	\$3.95	AAA, CA avg. for May 2019 <sup>52</sup>
Miles per Gallon (MPG)	NA	34	EPA Rating <sup>53</sup>
Maint. Cost per Mile	\$0.0599	\$0.0575	Exponential cost curve based on MSRP of \$37,000 and a base rate of \$0.06/mi <sup>54</sup>
Insurance Cost per Year	\$1,728	\$1,658	Exponential cost curve based on MSRP of \$37,000 and a base rate of \$1.731/yr <sup>55</sup>
EV Maint. Cost Reduction	47%	NA	2 <sup>o</sup> Institute Report <sup>56</sup>
Number of Years	5	5	Assumed for analysis
Miles Driven per Year	20,000	20,000	Assumed for analysis
Sales Tax (%)	8.75%	8.75%	San Mateo County <sup>57</sup>
Resale Value @ 100,000 mi	40%	40%	CarFax <sup>58,59</sup>

<sup>50</sup> Pacific Gas & Electric Company, "PG&E – Peninsula Clean Energy Joint Rate Comparisons".  
[https://www.pge.com/pge\\_global/common/pdfs/customer-service/other-services/alternative-energy-providers/community-choice-aggregation/pce\\_rateclasscomparison.pdf](https://www.pge.com/pge_global/common/pdfs/customer-service/other-services/alternative-energy-providers/community-choice-aggregation/pce_rateclasscomparison.pdf)

<sup>51</sup> U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, "Find and Compare Cars".  
<https://www.fueleconomy.gov/feg/noframes/40520.shtml>

<sup>52</sup> AAA, "Gas Prices". <https://gasprices.aaa.com/state-gas-price-averages/>

<sup>53</sup> U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, "Compare Side-by-Side".  
<https://www.fueleconomy.gov/feg/Find.do?action=sbs&id=40609>

<sup>54</sup> Supra, Note 46 – Equation is Cost per mile = 0.06 \* (MSRP/37000)<sup>0.1799</sup>.

<sup>55</sup> Supra, Note 46 – Equation is Cost per year = 1731 \* (MSRP/37000)<sup>0.1825</sup>.

<sup>56</sup> Ryan Logtenberg, et al., 2<sup>o</sup> Institute, "Comparing Fuel and Maintenance Costs of Electric and Gas Powered Vehicles in Canada", September 2018.  
[https://www.2degreesinstitute.org/reports/comparing\\_fuel\\_and\\_maintenance\\_costs\\_of\\_electric\\_and\\_gas\\_powered\\_vehicles\\_in\\_canada.pdf](https://www.2degreesinstitute.org/reports/comparing_fuel_and_maintenance_costs_of_electric_and_gas_powered_vehicles_in_canada.pdf)

<sup>57</sup> California Department of Tax and Fee Administration, "California Sales and Use Tax Rates by County and City", April 1, 2019. <https://www.cdtfa.ca.gov/formspubs/cdtfa95.pdf>

<sup>58</sup> Charles Krome, "Car Depreciation: How Much Value Will a New Car Lose?", Carfax, November 9, 2018.  
<https://www.carfax.com/blog/car-depreciation>

<sup>59</sup> Depreciation is an important factor in this analysis as is it difficult to predict the demand for used cars in the future. See Edmunds, "Edmunds Report Reveals a Car With 100,000 Miles Is More Valuable Than Shoppers Think", November 13, 2017. <https://www.edmunds.com/about/press/edmunds-report-reveals-a-car-with-100000-miles-is-more-valuable-than-shoppers-think.html>

## FINDINGS

- F1. As of December 2018, eleven of the twenty cities in San Mateo County have no electric vehicles in their government fleets. These are:
- Atherton
  - Belmont
  - Colma
  - Daly City
  - East Palo Alto
  - Half Moon Bay
  - Hillsborough
  - San Bruno
  - San Carlos
  - South San Francisco
  - Woodside
- F2. As of December 2018, in two of the twenty cities in San Mateo County approximately one percent of the city fleet are electric vehicles. These are:
- Burlingame
  - Foster City
- F3. As of December 2018, in three of the twenty cities in San Mateo County approximately three percent of the city fleet are electric vehicles. These are:
- Pacifica
  - Redwood City
  - San Mateo
- F4. As of December 2018, in the City of Millbrae approximately seven percent of the city fleet is electric vehicles.
- F5. As of December 2018, in two of the twenty cities in San Mateo County approximately ten percent of the city fleet are electric vehicles. These are:
- Brisbane
  - Menlo Park
- F6. As of December 2018, the Town of Portola Valley has converted two of its six city vehicles to electric vehicles, or approximately 33 percent.
- F7. San Mateo County has 709 fleet vehicles. Of those, 218 are Enhanced AT PZEVs and two are ZEVs (approximately 31 percent).

- F8. The County and eleven of the cities in the county have Climate Action Plans that discuss adoption of sustainable purchasing policies for converting their fleets to fuel efficient vehicles (hybrid, electric, alternative fuel). The cities are:
- Atherton
  - Belmont
  - Brisbane
  - Burlingame
  - East Palo Alto
  - Foster City
  - Menlo Park
  - Pacifica
  - Redwood City
  - San Carlos
  - San Mateo
- F9. San Mateo Office of Sustainability released a “Green Municipal Fleet Toolkit” in March of 2019. The purpose of this Toolkit is to assist jurisdictions on how to reduce greenhouse gas emissions from their municipal fleets.
- F10. The San Mateo County Office of Sustainability technical support pilot program for municipal fleets, which is funded to assist up to four cities in converting their fleets to ZEVs, runs through December 2019.
- F11. The Climate Mayors EV Purchasing Collaborative is available to assist the cities and the County in conversion of fleet vehicles to ZEVs through aggregate purchasing.

## **RECOMMENDATIONS**

- R1. By March 31, 2020, the County of San Mateo and each city within the county should conduct a review of its government fleet procurement policy relating to electric vehicles and present a report at a public meeting. At a minimum, the review should be based on an analysis that includes up-to-date life-cycle costs of commercially available electric vehicles and an up-to-date assessment of whether electric vehicles can meet the performance needs of local jurisdictions for power, range, battery life, and other relevant factors. If an agency has completed such a review within the last three years, then such review should be presented to its governing body at a public meeting on or before December 31, 2019.
- R2. By March 31, 2020, the County of San Mateo and each city within the county should conduct an analysis of the obstacles, if any, to the implementation of an EV government fleet procurement policy and present a report at a public meeting. This could include, for example, the availability of electric vehicle charging stations to serve the vehicle fleet and training of vehicle maintenance staff. If an agency has completed such an analysis within the last three years, then such analysis should be presented to its governing body at a public meeting on or before December 31, 2019.



- R3. By September 30, 2019, the County of San Mateo Department of Public Works and each city within the county should review the “Roadmap for Municipal Green Fleets” toolkit from the San Mateo County Office of Sustainability, including the information on the possibility of adopting an EV First Policy.
- R4. By September 30, 2019, the County of San Mateo and each city within the county, if they have not already initiated such a process, should investigate joining the Climate Mayors EV Purchasing Collaborative to take advantage of aggregate purchasing.

## **REQUEST FOR RESPONSES**

Pursuant to penal Code section 933.05, the Grand Jury requests responses from the City Councils of the following cities in San Mateo County:

- Atherton, Belmont, Brisbane, Burlingame, Colma, Daly City, East Palo Alto, Foster City, Half Moon Bay, Hillsborough, Menlo Park, Millbrae, Pacifica, Portola Valley, Redwood City, San Bruno, San Carlos, San Mateo, South San Francisco, Woodside.
- The San Mateo County Board of Supervisors

The governing bodies indicated above should be aware that the comment or response of the governing body must be conducted subject to the notice, agenda, and open meeting requirements of the Brown Act.

## **METHODOLOGY**

- The Grand Jury sent a survey/questionnaire to all the cities in San Mateo County. The same survey was sent to the County.
- The Grand Jury interviewed representatives from The Office of Sustainability, C/CAG, The County Department of Public Works and non- profit electric vehicles organizations.
- The Grand Jury attended city sponsored Electric Vehicle Workshops, the Sustainable San Mateo County Indicators forum, a seminar on The Future of Transportation: Clean Energy & Transformation presented by Peninsula Family Service Thought Leader Series, and the San Francisco Global Climate Change Summit.
- The Grand Jury conducted research using over forty-five internet sites and newspaper articles pertaining to electric vehicles, government agencies dealing with electric vehicles and greenhouse gas reduction in the transportation sector.

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## APPENDIX A

### Civil Grand Jury Survey

The following is the text of the survey that was sent to the County and each of the cities.

[Name of addressee]

[Address]

Re: Request for documents from San Mateo County 2018-19 Civil Grand Jury

Dear \_\_\_\_\_:

In connection with an investigation being conducted by the San Mateo County 2018-19 Civil Grand Jury, we are interested in responses to the following questions:

The number of Electric Vehicle charging stations your municipality has installed for government use

The number of EV charging stations your city has installed for public use

The number of vehicles in your cities fleet

How many of those vehicles are electric?

Does your city have a Climate Action Plan?

If so does that plan include the reduction of Green House Gas emissions through eliminating fossil fuel driven vehicles and adopting the use of Electric vehicles for government employees?

We would appreciate it if you could provide your answers to us within the next seven days. If any of the requests are unclear, or unduly burdensome to respond to, or if you need additional time to gather responsive documents, please let me know and we will be happy to clarify and/or work with you to make the request more manageable.

As you may be aware, under California law, all matters relating to the Grand Jury's work including the nature or subject of any inquiries it makes and its requests for documents, are to be treated as confidential by you and not disclosed except as directed by a court of law. You are, of course, free to engage the assistance of other personnel in your office to gather information responsive to our requests, but we ask that, except to the extent absolutely necessary, you not disclose this letter or the fact that the documents are being gathered in response to a Grand Jury request. Any violation of your statutory confidentiality obligation is punishable as contempt of court.

Thank you so much for your help.

Very Truly Yours,

Issued: August 12, 2019