



July 21, 2021

Green Fleet Recommendations

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Agenda

1. Review DHK recommendations for Fleet
2. Review Executive Order N-79-20
3. Short-term plan & recommendation
4. Mid-term plan & recommendation
5. Long-term plan & recommendation



SUMMARY OF RECOMMENDATIONS

The following presents a summary of the above recommendations:

1. Evaluation and possible implementation of R99 Diesel Fuel use as an interim diesel fuel replacement measure, resulting in an annual reduction of 117 metric tons of non-biogenic carbon.
2. Pursue electrification and/or hydrogen fuel cell fleet conversion when the vehicle availability and infrastructure become more developed as a possible long-term strategy.



DHK Engineers Recommendations



Governor Newsom Announces California Will Phase Out Gasoline-Powered Cars & Drastically Reduce Demand for Fossil Fuel in California's Fight Against Climate Change

Published: Sep 23, 2020

Executive order directs state to require that, by 2035, all new cars and passenger trucks sold in California be zero-emission vehicles

Transportation currently accounts for more than 50 percent of California's Greenhouse Gas Emissions

Zero-emission vehicles are a key part of California's clean, innovation economy – already California's second largest global export market

Executive Order N-79-20 – full text in Staff Report



Public Fleet ZEV Purchases

- Scope includes cities, counties, special districts, state agencies*
 - Entities with exempt plates from DMV
- ZEV purchases required when adding to the fleet
 - 50% of 2024-2026 model year vehicles must be ZEVs
 - 100% of 2027 and newer model years must be ZEVs
- Three-year exemption in designated counties until 2027
- Plug-in hybrids (NZEVs) count same as ZEVs until 2035

* Federal fleets addressed with private fleets

NZEV: Near-zero-emission vehicle as defined in ACT regulation

Current Fleet

DHK only listed 74 vehicles as they did not analyze heavy equipment. The heavy equipment has been added to this analysis.

Table 1: Authority Fleet Inventory (2020)

Vehicle Type	Number of Vehicles	Average Annual Mileage (miles)	Annual Fuel Consumption (gallons)	Annual Fuel Cost (\$)
Hybrid				
Sedans	1	2,894	75	\$212
SUVs	6	6,835	1,457	\$4,095
Subtotal	7	4,864	1,533	\$4,307
Gasoline				
Sedans	1	4,066	215	\$605
SUVs	8	6,011	2,053	\$5,770
Minivans	1	2,465	143	\$403
Compact Trucks	1	5,712	355	\$997
Light-Duty Trucks	38	8,851	36,320	\$102,058
Medium-Duty Trucks	2	5,477	1,550	\$4,354
Subtotal	51	5,430	40,636	\$114,187
Diesel				
Light-Duty Trucks	1	15,812	667	\$2,188
Medium-Duty Trucks	7	3,569	4,715	\$15,466
Heavy-Duty Trucks	8	3,659	6,074	\$19,922
Subtotal	16	7,680	11,456	\$37,577
Totals	74	5,941	53,625	\$156,070

Notes:
Calendar Year 2020 Data

Vehicle Type	2021
EV	0
Hybrids	7
Gasoline	51
Diesel	26
R-99	0
Total	84



Near-Term Recommendation

DHK's first recommendation was an immediate switch to R-99 instead of diesel.

There are also 4 vehicles that are suitable for EV purchases.

Capitalizing on the R-99 there are also 6 vehicles that can be bought with diesel engines to go to zero non-biogenic carbon.

Vehicle Type	2021	2022
EV	0	4
Hybrids	7	5
Gasoline	51	43
Diesel	26	0
R-99 (Renewable)	0	32
Total	84	84

The table shows the following data points and shifts:

- EV: 0 in 2021, 4 in 2022 (shifted from 7 Hybrids)
- Hybrids: 7 in 2021, 5 in 2022 (5 shifted to R-99)
- Gasoline: 51 in 2021, 43 in 2022
- Diesel: 26 in 2021, 0 in 2022 (shifted to R-99)
- R-99 (Renewable): 0 in 2021, 32 in 2022 (26 shifted from Diesel, 5 shifted from Hybrids)
- Total: 84 in 2021, 84 in 2022



Mid-Term Recommendation

Continue the same policy of swapping gas to either diesel or EV. Evaluate hydrogen fuel cell technology as it develops.

Significant reductions in Greenhouse Gas

Vehicle Type	2021	2022	2025
EV	0	4	13
Hybrids	7	5	0
Gasoline	51	43	27
Diesel	26	0	0
R-99	0	32	44
Total	84	84	84
Unleaded Gas (gallons)	42,300	35,665	22,394
Diesel (gallons)	11,500	-	-
Unleaded Gas (MT emissions)	370	312	196
Diesel (MT Emissions)	117	-	-
MT of CO2	487	312	196



Long-Term Recommendation

Continue the same policy of swapping gas to either EV or diesel.

Continue to evaluate hydrogen fuel cell technology.

Elimination of Fleet Greenhouse Gas by 2030.

Vehicle Type	2021	2022	2025	2030
EV	0	4	13	29
Hybrids	7	5	0	0
Gasoline	51	43	27	0
Diesel	26	0	0	0
R-99 (Renewable)	0	32	44	55
Total	84	84	84	84
Unleaded Gas (gallons)				
	42,300	35,665	22,394	-
Diesel (gallons)				
	11,500	-	-	-
R99 (gallons)				
		16,274	17,763	27,317
Electricity (kWh)				
	-	32,510	125,397	380,836
Unleaded Gas (MT emissions)				
	370	312	196	-
Diesel (MT Emissions)				
	117	-	-	-
MT of non-biogenic CO2				
	487	312	196	-
MT of biogenic CO2				
	-	45	62	78



Presentation Summary

- This Green Fleet Plan
 - achieves recommendations of DHK Study
 - positions Sweetwater to be in compliance with future CARB rules
 - Green Fleet Upgrade costs will cost about \$800,000 over the next 9 years, however, with grants and operational savings this number will be significantly reduced.



EV Fuel Economy Comparisons

Vehicle Type	# of vehicles	Replacement Costs	Annual Mileage	Fuel Costs / YR (@ \$3.91/gal)	EV Replacement	EV Estimated Cost	Annual Charging Cost (@ \$0.18/kWh)
SUV	6	\$ 30,000	48,088	\$ 6,715	Kona EV	\$ 39,000	\$ 2,431
Lt Gas Truck	8	\$ 32,500	70,808	\$ 19,776	F150 Lightning	\$ 42,000	\$ 5,578

Though we have no data on maintenance costs of EV, one article in Consumer Reports suggested that the average cost of maintenance of an electric vehicle is about half of its conventional fuel counterpart



Grant Opportunities

- SDG&E Power Your Drive Fleet program
 - Grants on Infrastructure and Equipment
- Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)
 - Rebates for up to 30 vehicles/yr of \$30 to \$45k on purchase price
 - Aug 10, 2021 grant opens with up to \$83 million
- Low Carbon Fuel Credits – In 2019 they were worth \$196/MT CO₂ (\$23k for 117 MT)



Recommendations

- Staff asks that the Board give staff direction on how to proceed. If the Board is interested in proceeding with this plan staff could do a complete financial analysis.





Questions?