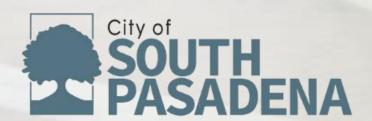
#### ITEM 2

Recommendation on the City Hall Fleet Electrification Infrastructure Projects

# Police Fleet EV Lease & SCE Charge Ready Program

September 14, 2022, Public Works Commission Meeting

**Prepared By: Public Works & Police Departments** 



#### Discussion Items

Advantages beyond meeting City Climate Action Plan Goals

 Lease agreement that realizes fuel and maintenance cost savings while considering reliability, performance, and safety.

• Infrastructure projects to support converting public safety fleet vehicles from gas-powered to electric-powered (Police patrol, detective, & pool)

Recommendation to Council to proceed with Southern California Edison (SCE)
 Charge Ready Participation Agreement if converting any Public Safety
 vehicles to electric

### Police Department Fleet Condition

Unit #	Year/Make/Model	Mileage	Out of Service	Out of Warranty	B/O Last 30 Days	Cause
#1501	2015 Toyota Highlander Hybrd	108,306		х		
#1705	2017 Ford Interceptor SUV	31,532		х		
#1933	2019 Ford Fusion	23,567				
#0702	2007 Dodge Charger Silver	145,513	X			
#0213	2001 Ford CV, White	103,793	X			
#0521	2011 Ford CV, Black	65,886		x		
#0218	2002 Ford CV, Gold	95,184		x		
#0219	2002 Ford CV, Black	81,558	X			
#1102	2005 Ford CV, Black	74,459		х		
#0317	2003 Ford CV Silver	82,757		x	X	Radiator Fan
#2198 (198)	2021 Ford Interceptor	10,380				
#1798	2017 Ford Interceptor SUV	84,597	X			
#1703	2017 Ford Interceptor SUV	95,258		х	X	Over-heating during pursuit
#1406	2014 Ford Interceptor SUV	115,942		x	X	Air Conditioning B/O
#1501 (1706)	2017 Ford Interceptor SUV	66,363	X	х	X	Blown head gasket
#1908	2019 Dodge Charger	60,951		x	X	Air Conditioning B/O // Not Sufficient for K9
#0134	2001 Ford F-250	28,022		x		
#1111	2011 Ford CV, B/W	51,512	X			
#1405	2014 Ford Taurus B/W	78,915		x		
#1404	2014 Ford Taurus B/W	112,677		х		
# 1201	2012 Chev Tahoe	88,100		х		
#1909	2019 Ford Interceptor SUV	65,097			Х	Electrical issue / Brakes

#### Vehicle Selection

- Safety & Protection of Officers 2022 Tesla Model Y
  - Insurance Institute for Highway Safety (IIHS) Highest Rated SUV
  - National Highway Traffic Safety Administration (NHTSA)'s only 5-Star SUV

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- Performance
- Vehicle Reliability
- Electrical System Reliability
- Cost Benefits & Savings



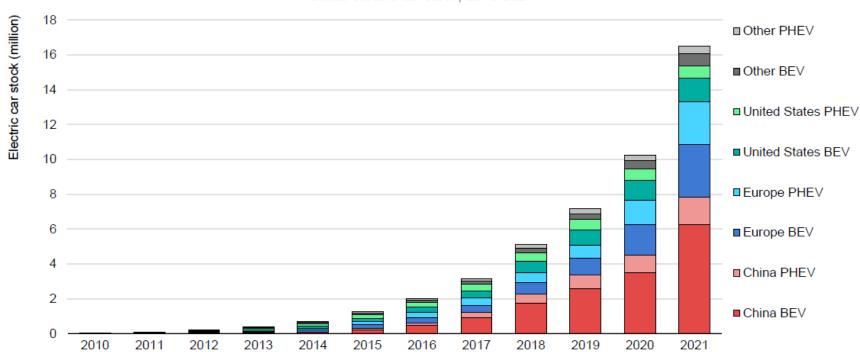
# Electric Vehicle Adoption

Global Electric Vehicle Outlook 2022

Trends and developments in EV markets

#### Over 16.5 million electric cars were on the road in 2021, a tripling in just three years





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Notes: BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle. Electric car stock in this figure refers to passenger light-duty vehicles.

"Other" includes Australia, Brazil, Canada, Chile, India, Japan, Korea, Malaysia, Mexico, New Zealand, South Africa and Thailand. Europe in this figure includes the EU27, Norway, Iceland, Switzerland and United Kingdom.

Sources: IEA analysis based on country submissions, complemented by <u>ACEA; CAAM; EAFO; EV Volumes; Marklines</u>.



# Lease vs. Buy

SOUTH PASADENA CITY HALL

Lower Cost to Entry

Flexibility

Benefit from Technology Advances



#### Vehicle Costs

VEHICLE	TERM	CAPITALIZED COST	AFTERMARKET COST FROM UNPLUGGED (INCLUDED IN CAPITALIZED COST)	25% CAPITALIZED PRICE REDUCTION (MONEY DOWN)	AVERAGE GAIN ON PRIOR FROM SELLING 20 CITY- OWNED VEHICLES	MONTHLY LEASE PAYMENT WITH TAX	QUANTITY	TOTAL MONTHLY COST x QTY	ANNUAL COST x QTY	TOTAL MONEY DOWN x QTY
2022 TESLA MODEL Y PATROL	60	\$109,764	\$40,874	\$25,814.75	\$6,970	\$1,700.80	9	\$15,307.20	\$183,686.40	\$232,332.75
2022 TESLA MODEL Y K9	60	\$112,356	\$43,466	\$26,462.75	\$6,970	\$1,743.21	1	\$1,743.21	\$20,918.52	\$26,462.75
2022 TESLA MODEL 3 DETECTIVE	60	\$56,264	\$6,324	\$12,439.75	\$6,970	\$825.67	9	\$7,431.03	\$89,172.36	\$111,957.75
2022 TESLA MODEL Y CADET	60	\$58,499	\$8,559	\$12,998.50	\$6,970	\$862.24	1	\$862.24	\$10,346.88	\$12,998.50
							20	\$25,343.68	\$304,124.16	\$383,751.75

YEAR 1 COST \$687,876

YEAR 2 COST \$304,124

YEAR 3 COST \$304,124

YEAR 4 COST \$304,124

YEAR 5 COST \$304,124

\$1,904,373

Estimated Wholesale Value at	Reduced Book Value at Term	Estimated Equity at	Estimated Equity x QTY	
\$19,000.00	\$7,744.65	\$11,255.35	\$101,298.15	
\$19,000.00	\$7,939.05	\$11,060.95	\$11,060.95	
\$16,000.00	\$3,731.85	\$12,268.15	\$110,413.35	
\$16,000.00	\$3,899.70	\$12,100.30	\$12,100.30	

Estimated Equity at 60-Month Term (2027) \$234,872.75

# Reliability: Gas vs. Electric

Reduced maintenance downtime

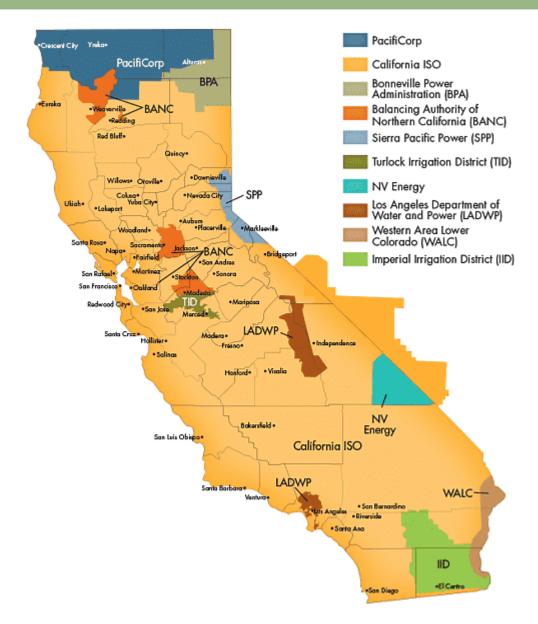
Source & Production Concerns

• Decreased background noise (improved radio communication, etc.)

· Electrical outages affect both gas pumping capability and electric charging

# Balancing Authorities

- CAISO
  - South Pasadena
  - Pasadena
- LADWP
  - Glendale
  - Burbank
  - Pasadena Alternate



# Which EV is right for SPPD?

Specifications Specification Specificat							
	2022 Ford Police Interceptor 3.3L	2022 Tesla Model Y LR	2022 Ford Mach-e Premium	2022 Volkswagen ID.4 Pro S	2022 Hyundai Ioniq 5	2022 Kia EV6	
Drivetrain:	AWD	AWD	AWD	AWD	AWD	AWD	
Ground Clearance:	7.6"	6.6"	5.7"	6.7"	6.1"	6.1"	
Range:	344 mi. (18.6 gal tank)	330 mi.	270 mi.	240 mi.	256 mi.	274 mi.	
Performance: (hp/torque)	285 hp, 260 lb-ft	384 hp, 376 lb-ft	346 hp, 428 lb-ft	201 hp, 228 lb-ft	320 hp, 446 lb-ft	320 hp, 446 lb-ft	
Acceleration: (0-60mph)	7.84 sec	4.8 sec	4.8 sec	5.7 sec	5.2 sec	4.6 sec	
Cargo space:	52 cu. ft.	68 cu. ft.	59.7 cu. ft.	64.2 cu. ft.	59.3 cu. ft.	50.2 cu.ft.	
Fast Charging Range Increase:	N/A	200 mi. in 15 min.	59 mi. in 10 min.	60 mi. in 10 min.	10%-80% in 18 min.	217 mi. in 18 min.	
Safety Rating (NHTSA):	Frontal crash not rated/5-Star in 2 categories/ 4-Star in 1 category	5-Star all categories and sub-categories	Not rated all categories	5-Star in 3 categories/4- Star in 1 sub-category/1 category not rated	Not rated all categories	Not rated all categories	
Battery Pack Size:	N/A	74 kWh	91 kWh	82 kWh	77.4 kWh	77.4 kWh	



# Which EV is right for SPPD?





### Costs: Gas vs. Electric

Factors	2022 Tesla Model Y	Ford PPV (Gas)		
Vehicle Cost	\$68,890	\$44,850		
Range	330 miles (74 kilowatt-hour [kWh] battery)	344 miles (18.6 gallon tank capacity)		
Cost of Energy/Fuel	\$7.40 (\$0.10 kWh Average)	\$99.88 (\$5.37 per gallon)		
Annual Cost of Energy/Fuel (15,000 mi/year)	\$336	\$4,355		
Annual Cost of Maintenance/Repair	\$846	\$1,653		
Cost per Mile	\$0.10	\$0.40		

#### Infrastructure Costs

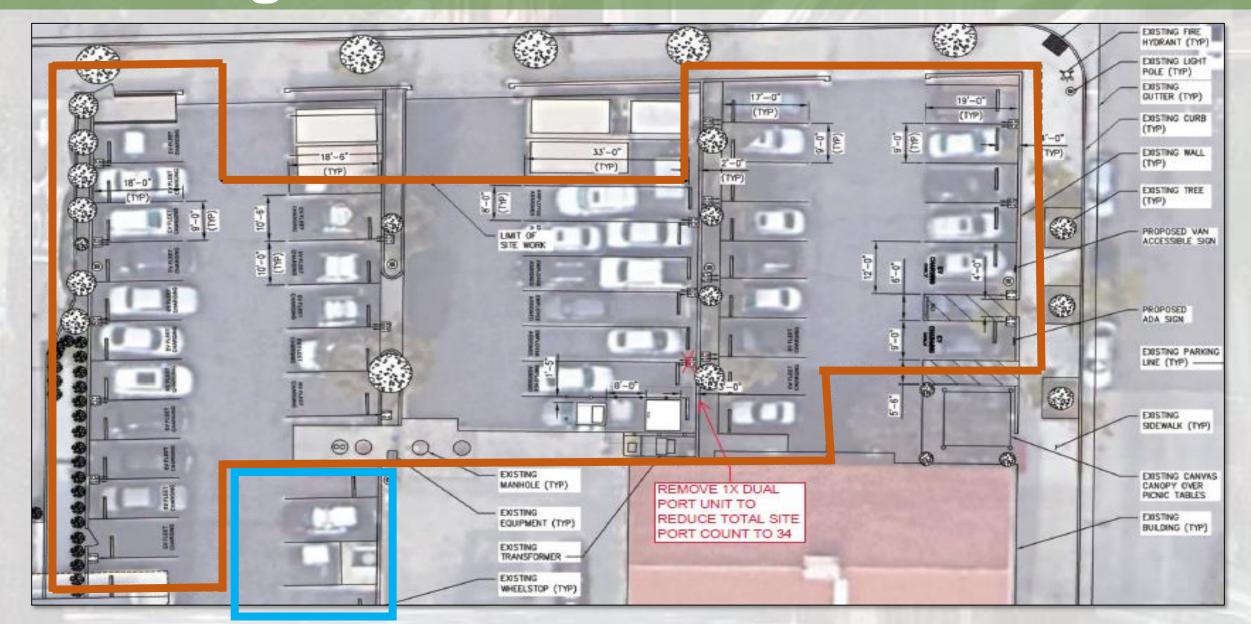
- 15 Dual ports (30) \$2,450 x 15 = \$36,750
  4 single ports (4) \$1,100-\$2,350 x 4 = \$9,400
  19 Installation & Setup \$600 x 19 = \$11,400 \$57,550
  34 Ports Rebate \$725 x 34 = \$24,650 \$32,900
- 34 Ports Network \$15/month x 34 x 120 months = \$61,200
- 15 Dual Port 8-Year Warranty \$2000 x 15 = \$30,000 (\$250/yr/charger)
- 4 Single Port 8-Year Warranty \$1600 x 4 = \$6,400 (\$200/yr/charger)

\$97,600 over 8-10 years

- Does not include revenue from 14 public facing charge ports
- Does not include revenue from Low Carbon Fuel Standard Credits
- Does not include cost to repurchase chargers that must be replaced prior to 10 year program commitment.

#### **EV Charger Locations**

### 34 Level 2 EV Charger Ports2+ Level 3 EV Charger Ports



# SCE Charge Ready Schedule

