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California Energy Commission

2018 IEPR Update Light Duty PEV Forecast

IEPR Workshop

December 6, 2018

Aniss Bahreinian

Transportation Energy Forecasting Unit

Demand Analysis Office

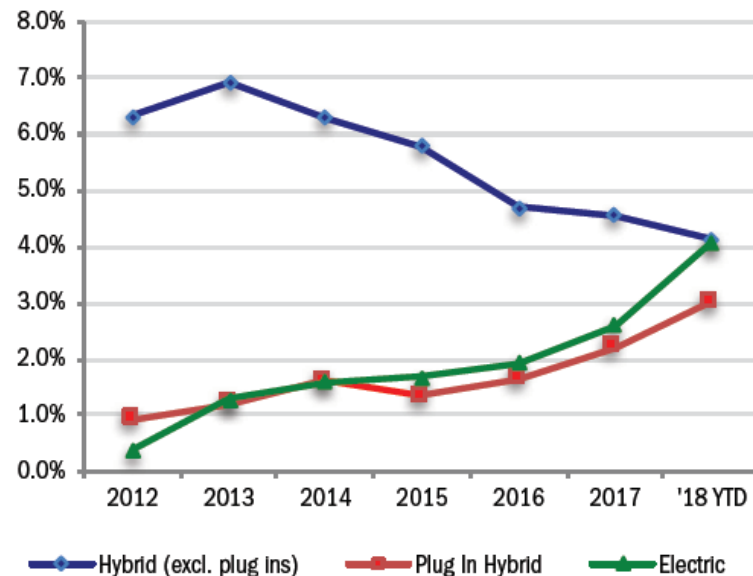
Energy Assessments Division



California Energy Commission

Green Car Share Exceeds 10% for the First Time, in 3rd Quarter 2018

Hybrid and Electric Vehicle Market Share



Source: IHS



Hybrid/electric vehicle
market share, YTD '18 (thru Sept.):
11.2 percent

Hybrid and Electric New Vehicle Registrations and Market Share

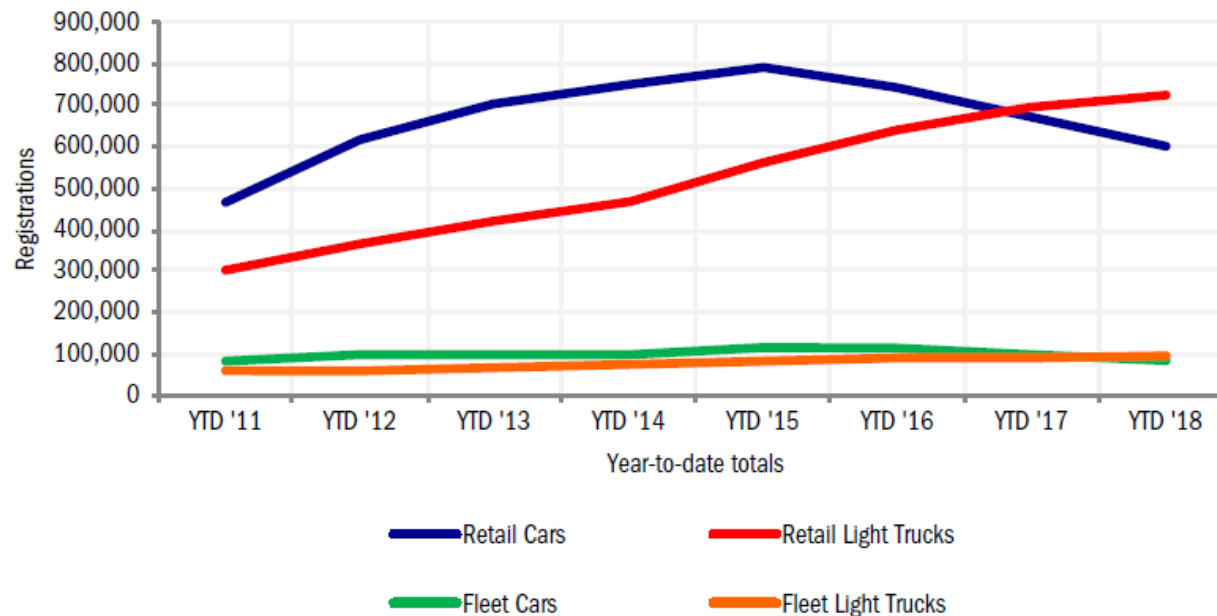
	2014	2015	2016	2017	YTD 2018
Hybrid regs.(excl. plug ins)	116217	118981	98083	93338	62189
Hybrid share(excl. plug ins)	6.3%	5.8%	4.7%	4.6%	4.1%
Plug in hybrid regs.	29949	27740	34727	45040	45537
Plug in hybrid share	1.6%	1.4%	1.7%	2.2%	3.0%
Electric regs.	29536	34477	40347	53500	61386
Electric share	1.6%	1.7%	1.9%	2.6%	4.1%

Source: CNCDA 3rd Quarter Report on California Auto Outlook. <https://www.cncda.org/wpcontent/uploads/Cal-Covering-3Q-18.pdf>



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Light Duty Car Share Continue to Decline & Light Truck Share Continue to Increase



Data Source: IHS Markit.

Source: CNCDA 3rd Quarter Report on California Auto Outlook. <https://www.cncda.org/wpcontent/uploads/Cal-Covering-3Q-18.pdf>



PERCENT CHANGE:
YTD '18 VS. YTD '17

Retail cars: **DOWN 10.5%**

Retail light trucks: **UP 5.6%**

Fleet cars: **DOWN 11.6%**

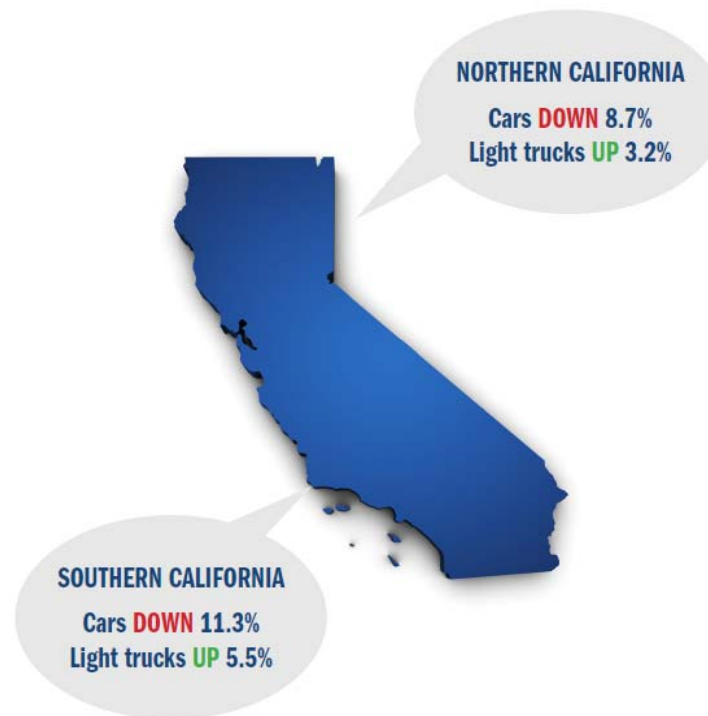
Fleet light trucks: **UP 9.3%**



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Light Duty Cars Decline and Light Trucks Increase at Faster Rates in Southern California

Percent Change in New Retail Registrations – Year To Date '18 (Sept.) vs. '17



Source: CNCDA 3rd Quarter Report on California Auto Outlook. <https://www.cncda.org/wpcontent/uploads/Cal-Covering-3Q-18.pdf>



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California Light Vehicle Registrations - Year-to-Date, Through September

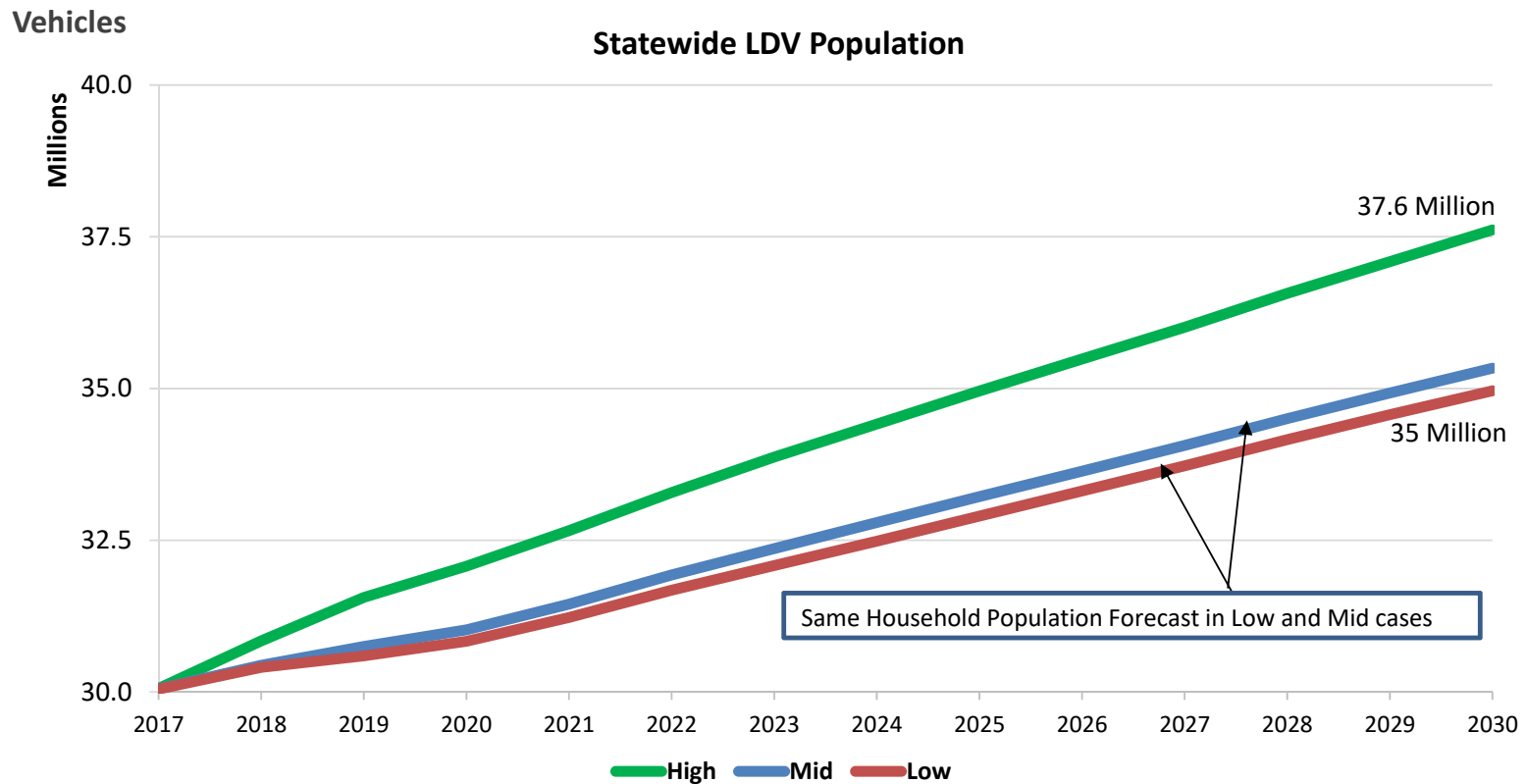
Year	Used	New	% New
2017	2,897,228	1,362,376	32%
2018	2,888,943	1,324,112	31%
% Change	-0.3%	-2.8%	

Source: CNCDA 3rd Quarter Report on California Auto Outlook. <https://www.cncda.org/wpcontent/uploads/Cal-Covering-3Q-18.pdf>



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Light Duty Vehicle Population Grows with Population and Income





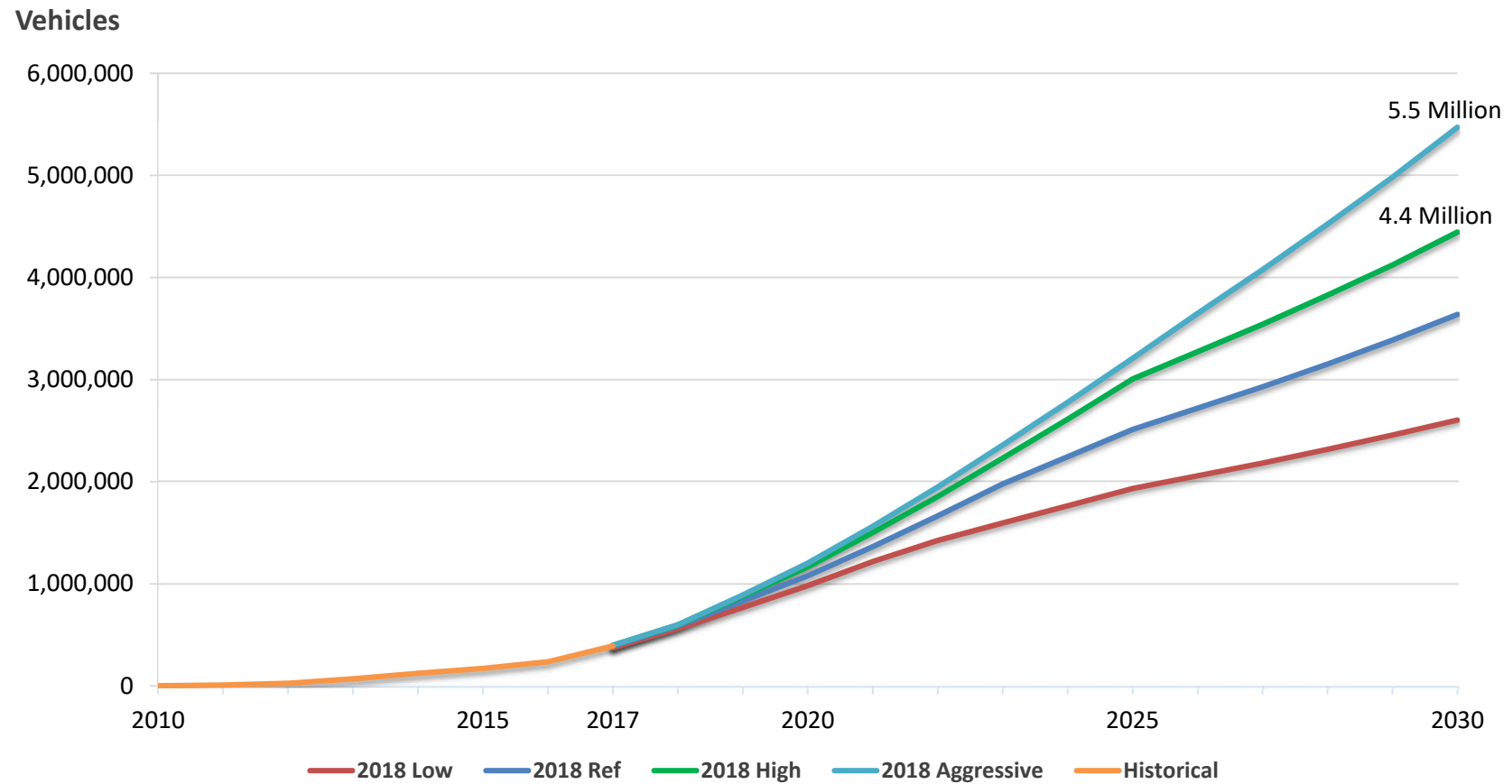
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2018 IEPR Update PEV Scenarios

	PEV SCENARIOS, 2018 UPDATE				
INPUTS	Very Low	Low	Reference	High	Aggressive
PREFERENCES					
Consumers' PEV Preference	Constant at 2017 Level	Constant at 2017 Level	Increase with PEV market growth	Increase with PEV market growth	Increase with PEV market growth
INCENTIVES					
Federal Tax Credit	Decreasing starting 2019, Eliminated after 2022	Decreasing starting 2019, Eliminated after 2022	Decreasing starting 2019	Decreasing starting 2019	Decreasing starting 2019
State Rebate	To 2025	To 2025	To 2025	To 2025	To 2030 for BEV/FCV
HOV Lane Access	To 2021	To 2021	To 2023	To 2025	To 2025 for PHEV, to 2030 for BEV/FCV
ATTRIBUTES					
Availability of PEVs (in 2030)	PEV models available in 14 of 15 CEC LDV classes	PEV models available in 14 of 15 CEC LDV classes	PEV models available in 14 of 15 CEC LDV classes	PEV models available in 15 of 15 CEC LDV classes	PEV models available in 15 of 15 CEC LDV classes
Vehicle / Battery Price (by 2030)	PEV prices based on initially constrained battery supply	PEV prices based on battery price declining to ~\$120/kWh	PEV prices based on battery price declining to ~\$100/kWh	PEV prices based on battery price declining to ~\$80/kWh	PEV prices based on battery price declining to ~\$70/kWh
Avg. Range (2030)	~255 miles	~255 miles	~260 miles	~280 miles	~280 miles
Refuel Time (2030)	15 -21 min	15 -21 min	15 -21 min	10-16 min	10-16 min
Time to Station (2030)	7-8 min	7-8 min	Same as gasoline	Same as gasoline	Same as gasoline by 2025
FORECAST RESULTS					
2030 ZEV Population	2.59 million	2.60 million	3.64 million	4.44 million	5.47 million

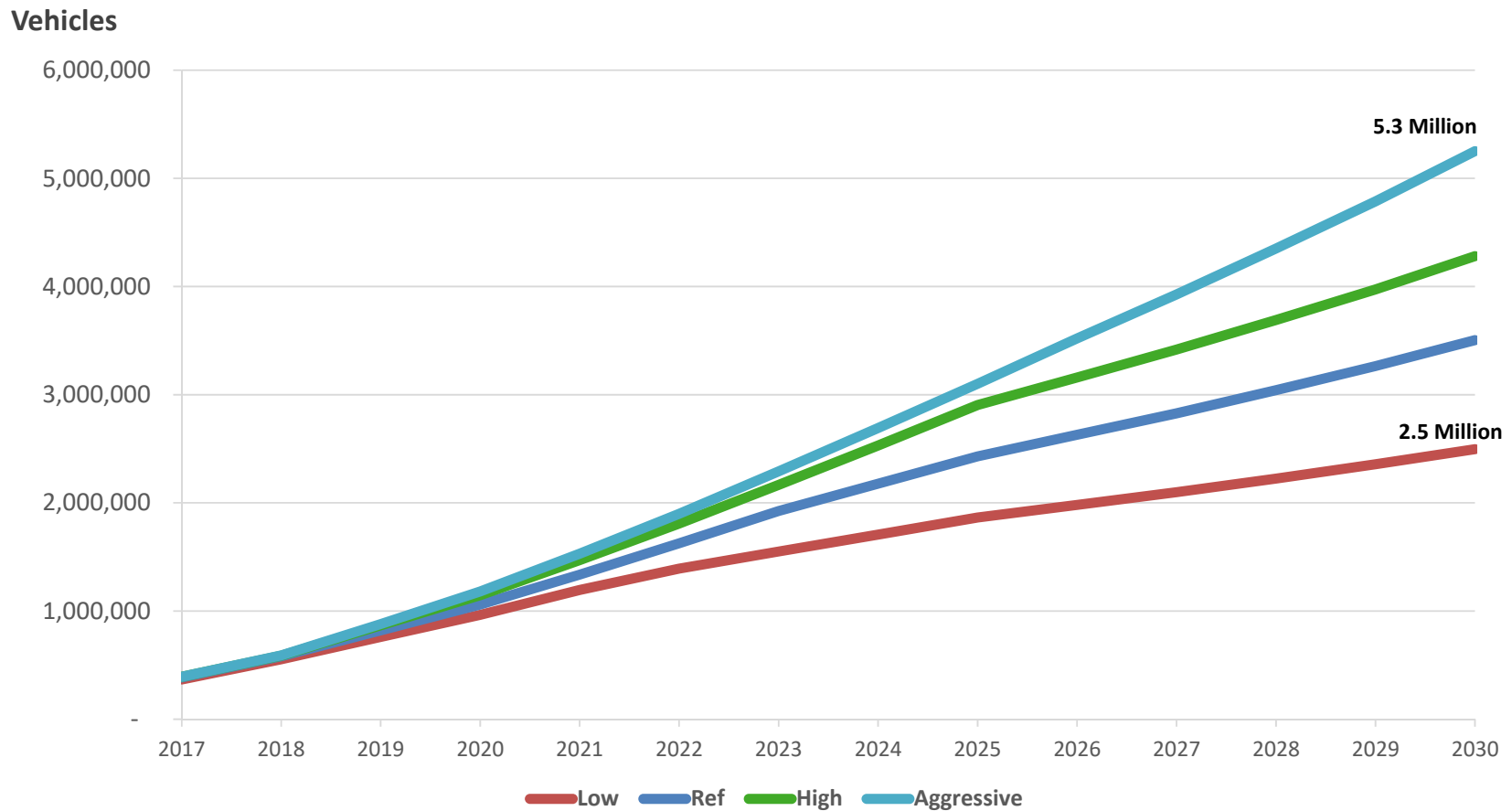


Statewide Light Duty ZEV Population Forecast





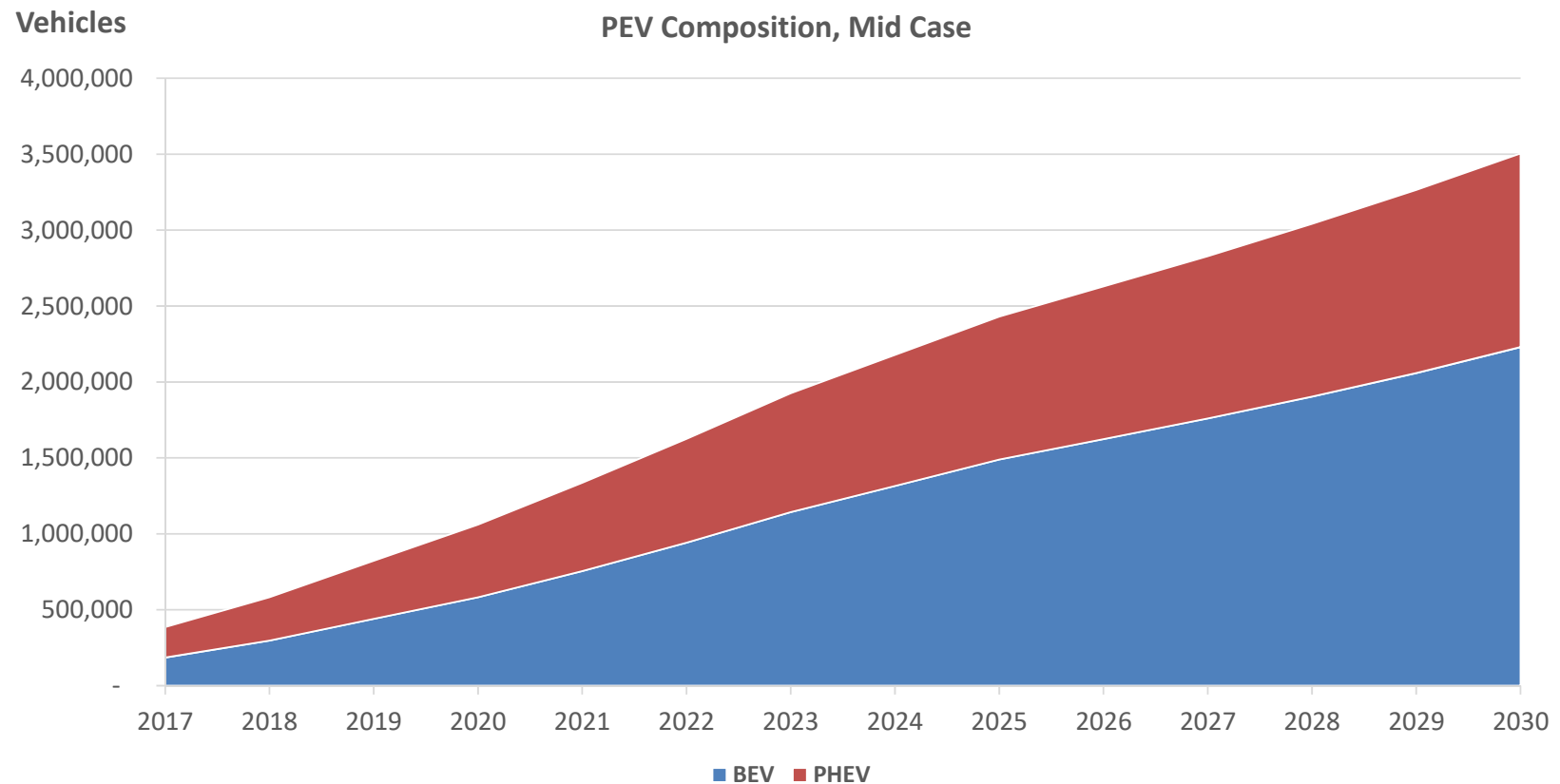
2018 Statewide Light Duty PEV Forecast





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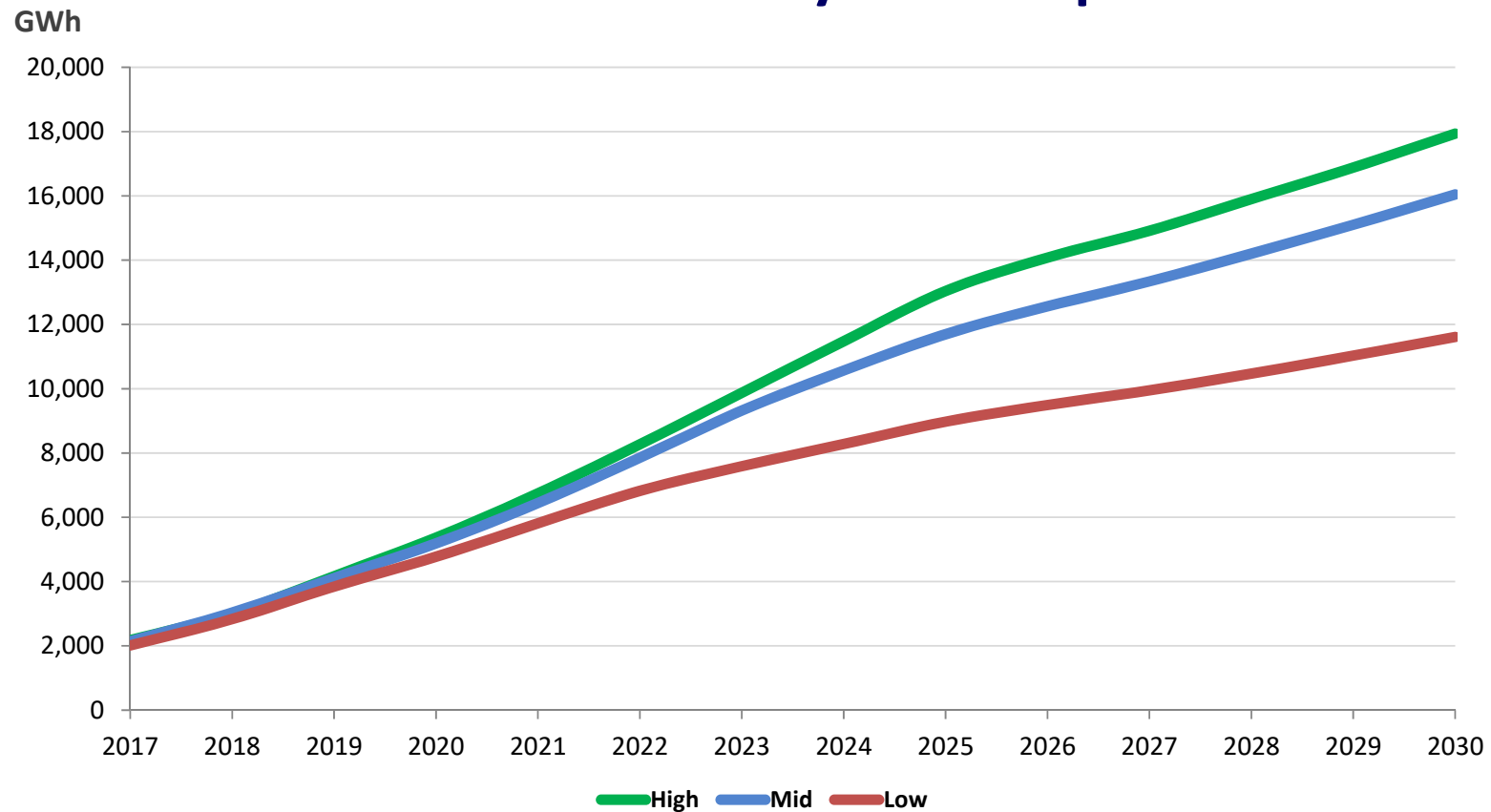
BEV Forecast Exceeds PHEV Forecast in All Scenarios





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Light Duty PEV Electricity Consumption Grows at a Faster Rate Than Total Electricity Consumption





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