

# Preliminary Electric Vehicle Demand Forecast

California Energy Commission

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**Workshop on Revised Electricity and Natural Gas Demand  
Forecasts 2014-2024**

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# Vehicle Survey

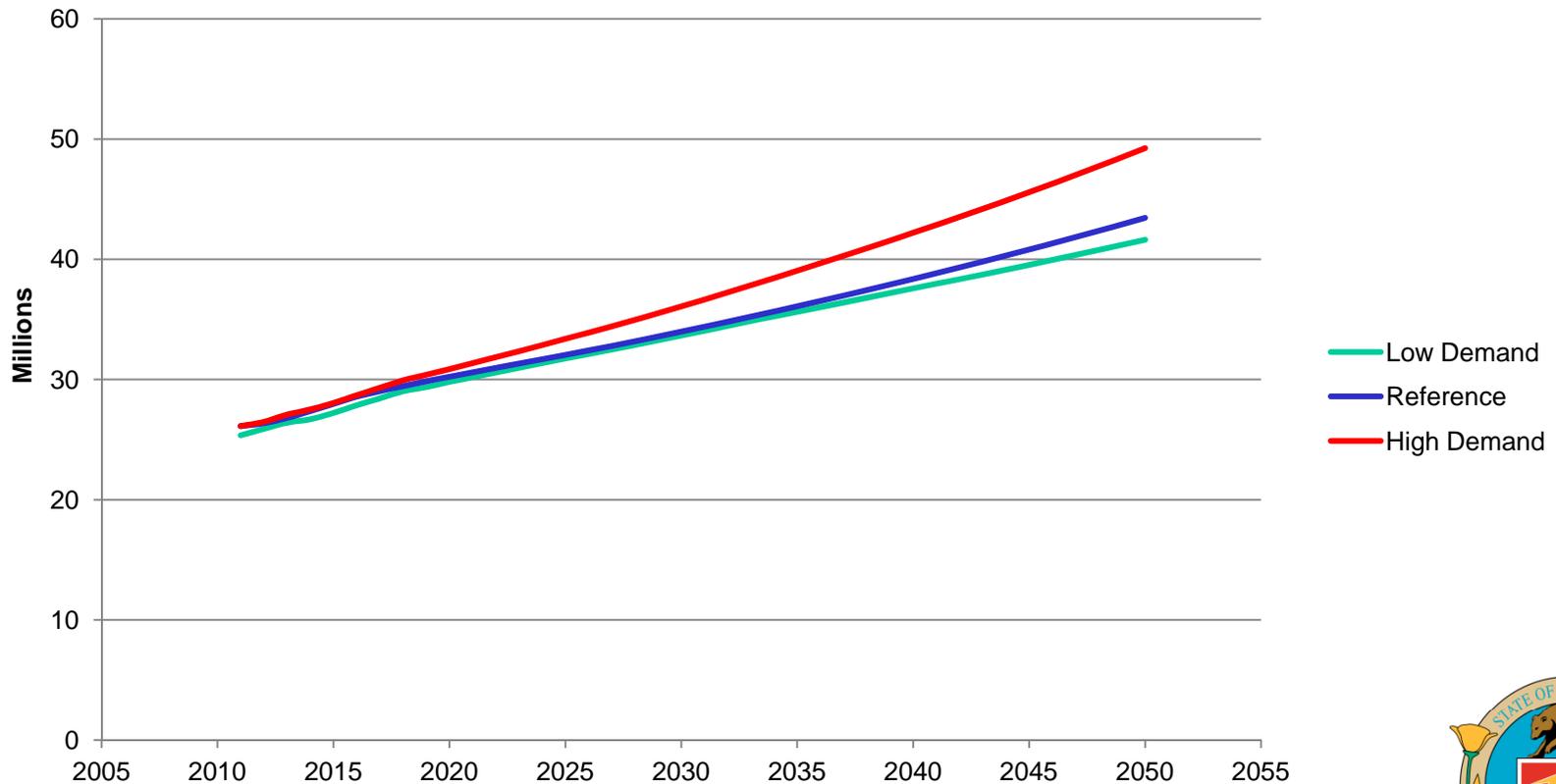
- Commission conducts a periodical vehicle survey to update models and inputs used in forecasting demand for light duty vehicles of all vehicle and fuel types, including PEVs.

Survey offers choices of:

- Fuel type: Gasoline (2 technologies), diesel (2 technologies), CNG (3 technologies), FFV, EV, PHEV, FCV
- Vehicle class: not just cars and trucks, but 15 different classes. NEV is not included in survey.
- Other vehicle attributes for each vehicle class and fuel type combination, including:
  - Vehicle Price
  - Fuel Cost per Mile
  - Maintenance Cost
  - Range
  - MPG
  - Acceleration
  - Cargo Space
  - Incentives



# Anticipated California Vehicle growth: Passenger Cars & Light Trucks



# 2012 Market Segment Stock Distribution by Vehicle Class

Vehicle Class	Total	Total %	HH %	Com %	Gov %	Rent %
CAR-SUBCOMPACT	2528078	9.4%	10.2%	5.2%	2.1%	4.5%
CAR-COMPACT	4485611	16.6%	17.6%	11.7%	5.6%	23.8%
CAR-MIDSIZE	5046853	18.7%	19.3%	15.1%	12.6%	28.5%
CAR-LARGE	1193256	4.4%	4.3%	4.2%	19.1%	9.6%
CAR-SPORT	1171695	4.3%	4.7%	2.3%	0.1%	3.8%
CROSS/UT-SMALL- CAR	465784	1.7%	1.8%	1.5%	0.2%	1.8%
CROSS/UT-SMALL- TRK	1667866	6.2%	6.3%	5.8%	1.8%	10.9%
CROSS/UT-MIDSIZE	754689	2.8%	2.8%	2.9%	0.1%	1.8%
SPORT/UT-COMPACT	1208813	4.5%	4.9%	2.5%	1.0%	0.8%
SPORT/UT-MIDSIZE	620714	2.3%	2.4%	1.8%	1.7%	1.0%
SPORT/UT-LARGE	1234923	4.6%	4.9%	3.1%	2.5%	2.8%
SPORT/UT-8,501-10,000	62037	0.2%	0.0%	1.6%	0.4%	0.0%
VAN-COMPACT	1442853	5.4%	5.4%	5.4%	4.0%	4.9%
VAN-STD	207712	0.8%	0.3%	3.3%	3.4%	0.4%
VAN 8,501-10,000	221361	0.8%	0.0%	5.2%	7.8%	1.7%
PICKUP-COMPACT	1674203	6.2%	6.6%	4.1%	8.5%	0.3%
PICKUP-STD	2262253	8.4%	8.6%	6.9%	15.2%	2.3%
PICKUP 8,501-10,000	689638	2.6%	0.0%	17.3%	12.2%	1.0%
NEV	14108	0.1%	0.0%	0.1%	1.6%	0.0%
<b>Total</b>	<b>26952447</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>



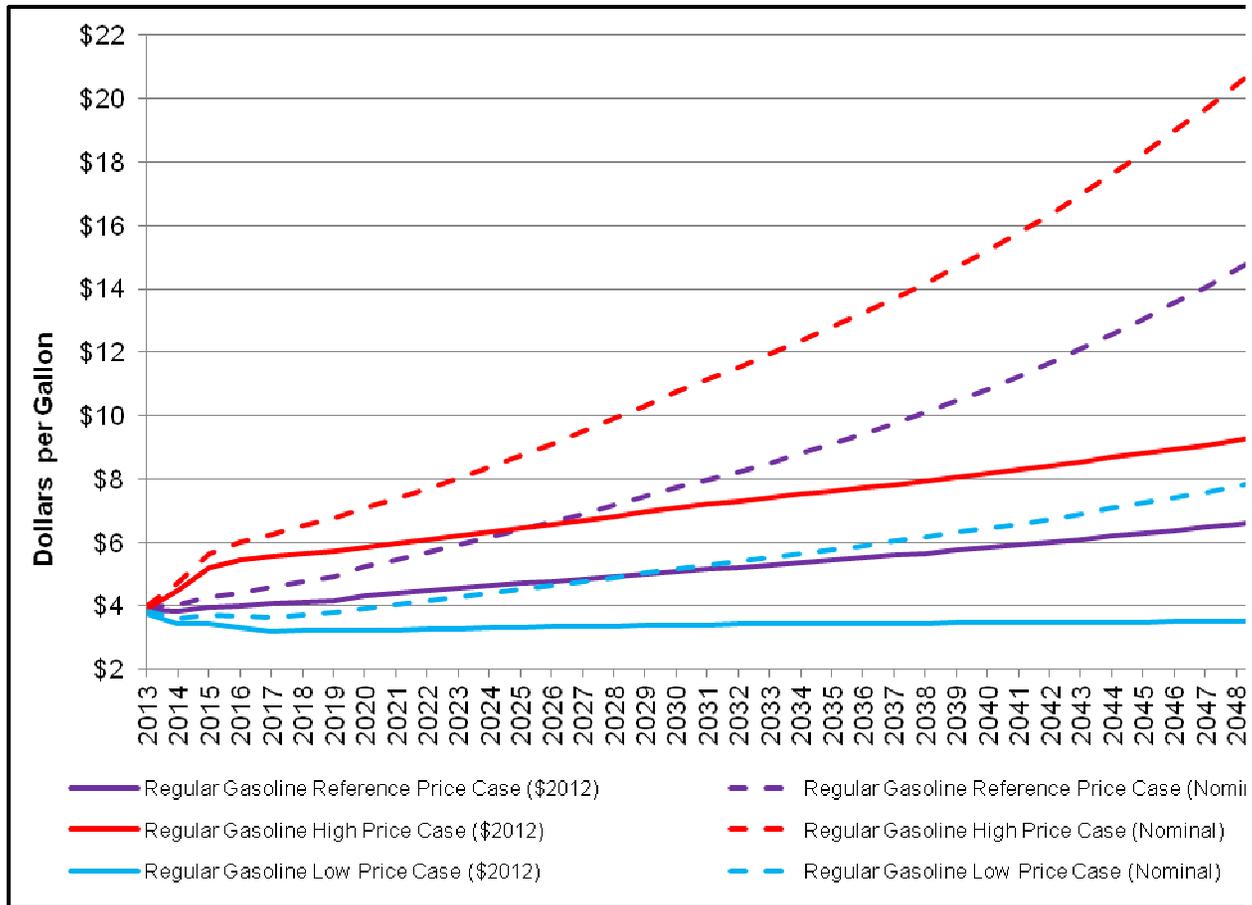
# Technology Introduction Schedule by Fuel Type and Vehicle Class

## Sierra Research

Subfleet	Veh Class	Class Description	GAS	GHYB	DSL	DHYB	FFVG	PHEV	CNG	DUAL	EV	FCV
Car Classes	01A	Subcompact	1992	2000	1992	2020	2004	2015	1998	1999	1998	2003
	02A	Compact	1992	2001	1992	2020	2003	2011	2000	1999	2000	2005
	03A	Midsize	1992	2004	1996	2020	1999	2013	2000	-	2011	2019
	04A	Large	1992	2010	1993	2020	2006	2015	1996	-	2017	-
	05A	Sport	1992	2011	-	2020	2011	-	-	-	2009	-
	06A	Cross Utility - Small	1992	2020	2010	2020	2009	-	-	-	-	-
Light-Duty Truck Classes	07A	Cross Utility - Small	1992	2006	2004	2020	2007	2017	-	-	2000	2020
	08A	Cross Utility - Midsize	1992	2006	2009	2020	-	2017	-	-	2018	2009
	09A	Sports Utility - Compact	1992	2020	-	2020	2007	-	-	-	-	-
	10A	Sports Utility - Midsize	1992	2020	2007	2020	2000	-	-	-	2001	-
	11A	Sports Utility - Large	1992	2004	1993	2020	2002	-	2011	-	-	-
	11B	Sports Utility - Heavy	1992	2020	1993	2020	-	-	2005	-	-	-
	12A	Van - Compact	1992	2020	-	2020	1999	-	-	-	1999	-
	13A	Van - Large	1992	2020	1992	2020	2007	2017	2002	2013	2012	2021
	13B	Van - Heavy	1992	2020	-	2020	2011	-	1998	2013	-	-
	14A	Pickup - Compact	1992	2020	-	2020	1999	-	-	-	1998	-
	15A	Pickup - Standard	1992	2004	1992	2020	2003	2017	2000	1999	-	2021
	15B	Pickup - Heavy	1992	2020	1992	2020	-	-	1998	1999	-	-



# Projected Gasoline Prices



Source: California Energy Commission



# Laws and Plans on Record

## California ZEV Mandate:

- The mandate requires OEMs to offer and sell LDV vehicles in different ZEV categories.
- **ZEV** new vehicle sales requirement gradually growing to set at **15.4% of new vehicle sales** in **2025**

## CAFE Standard Vehicle fuel economy

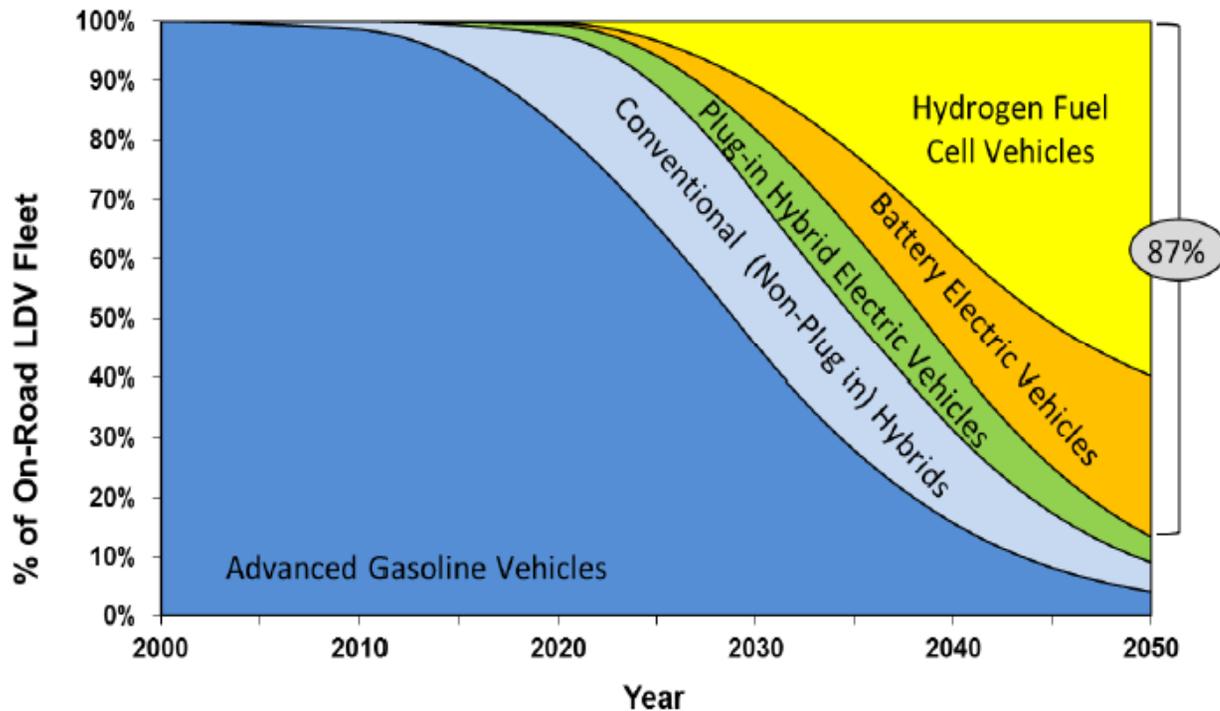
- Fleet Average 35.5 MPG by 2016
- Fleet Average 54.5 by 2025

Governor's **Executive Order B-16-12** calls for:

- **1.5 Million ZEVs** on California roads by **2025**
- Infrastructure to support 1 Million ZEVs by 2020



## One way to reach the goal: On-Road Light Duty Vehicle Requirements

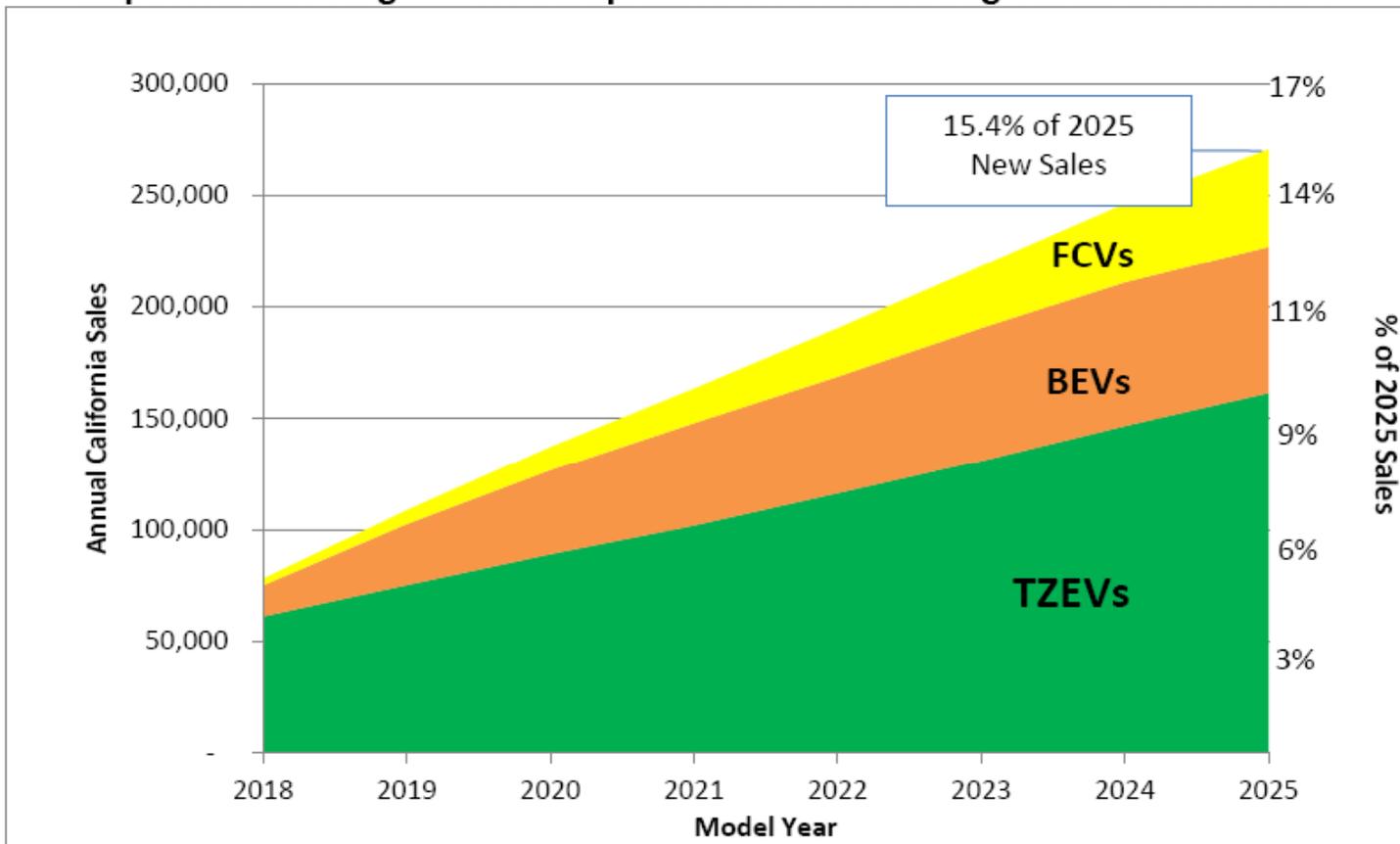


Source: Advanced Clean Cars: Initial Statement of Reasons, ARB December 2011



# ZEV Expectation

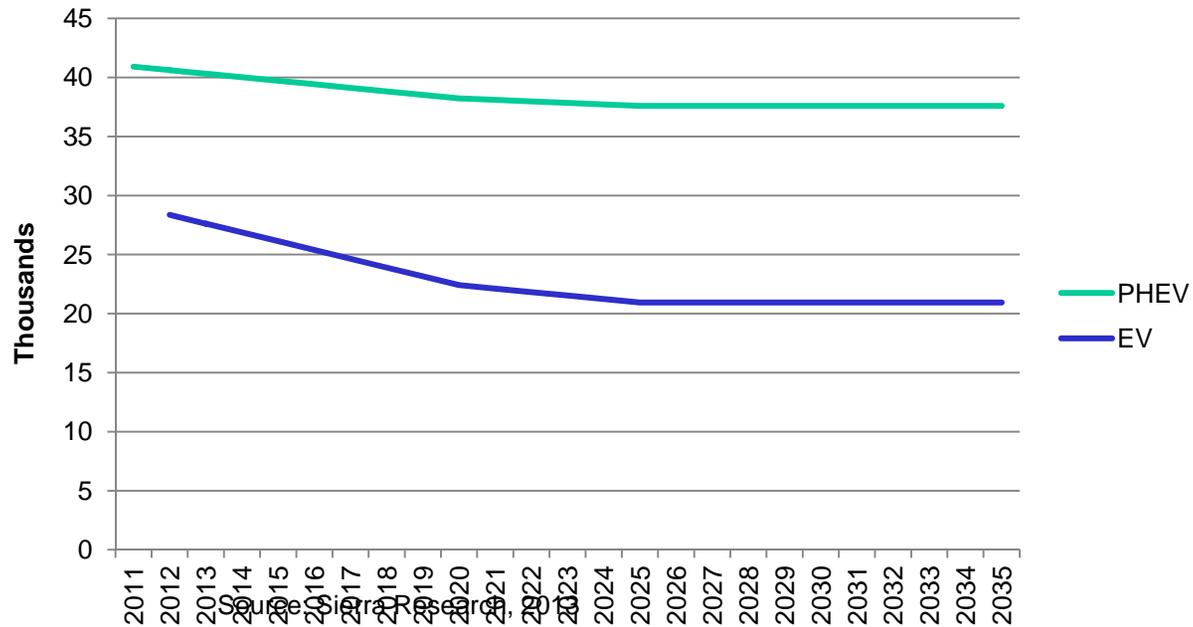
Expected ZEV Regulation Compliance for 2018 through 2025 Model Years



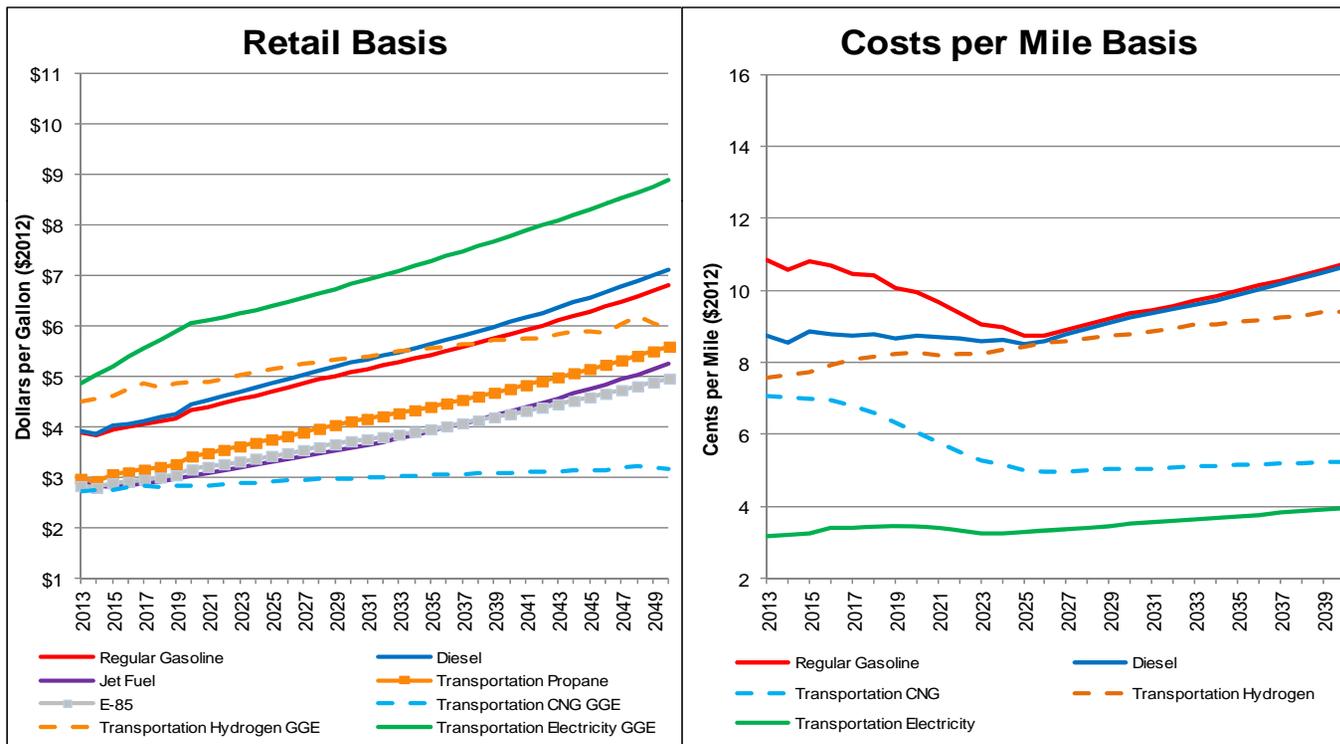
Source: Advanced Clean Cars: Initial Statement of Reasons, ARB December 2011



# Projected ZEV Compact Vehicle Prices



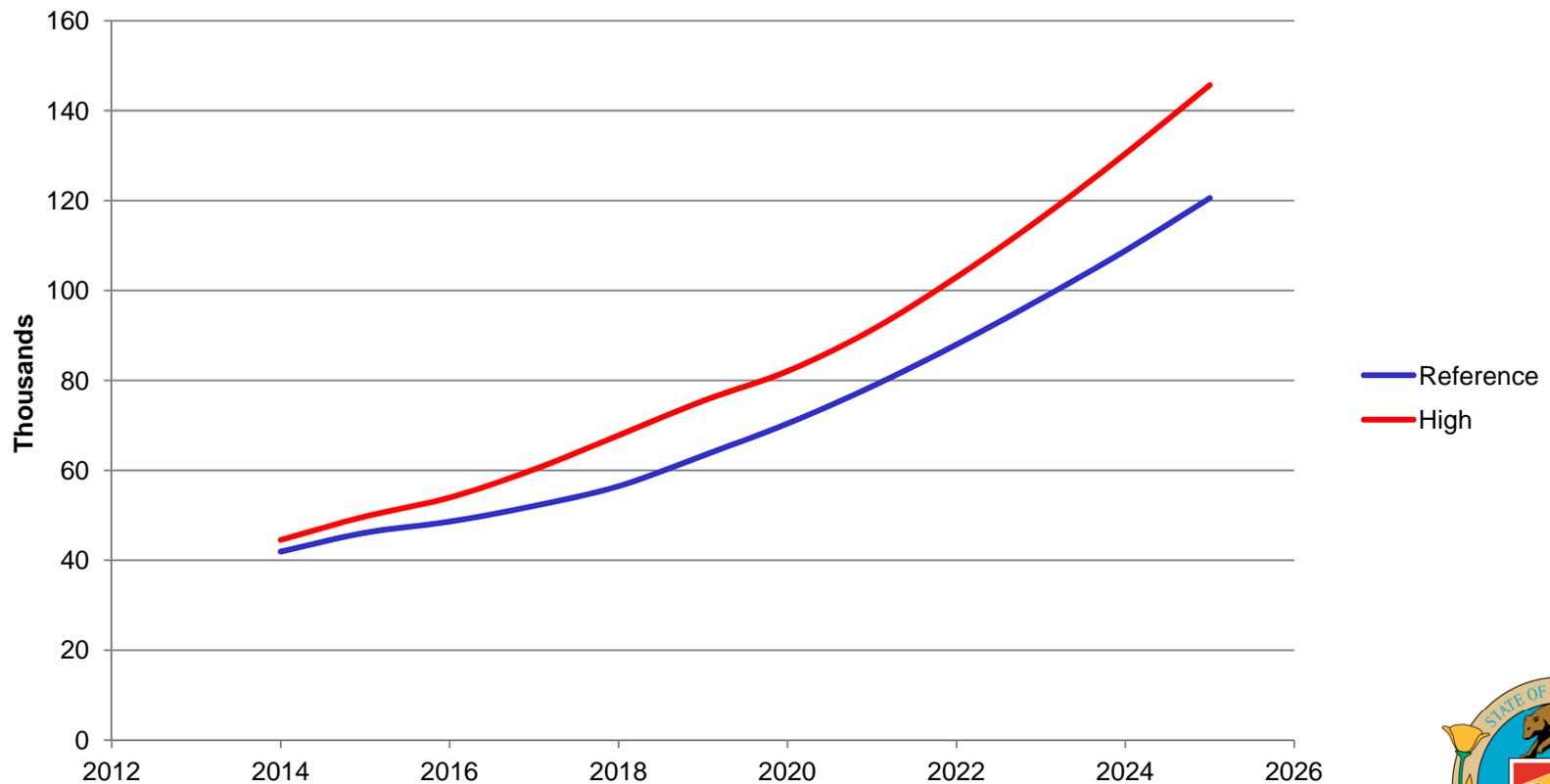
# Transportation Energy Prices & Cost per Mile Reference Case



Source: California Energy Commission



# Preliminary Forecast PEV New Vehicle Sales Personal and Commercial LDV



# Preliminary Forecast On-Road PEVs

