

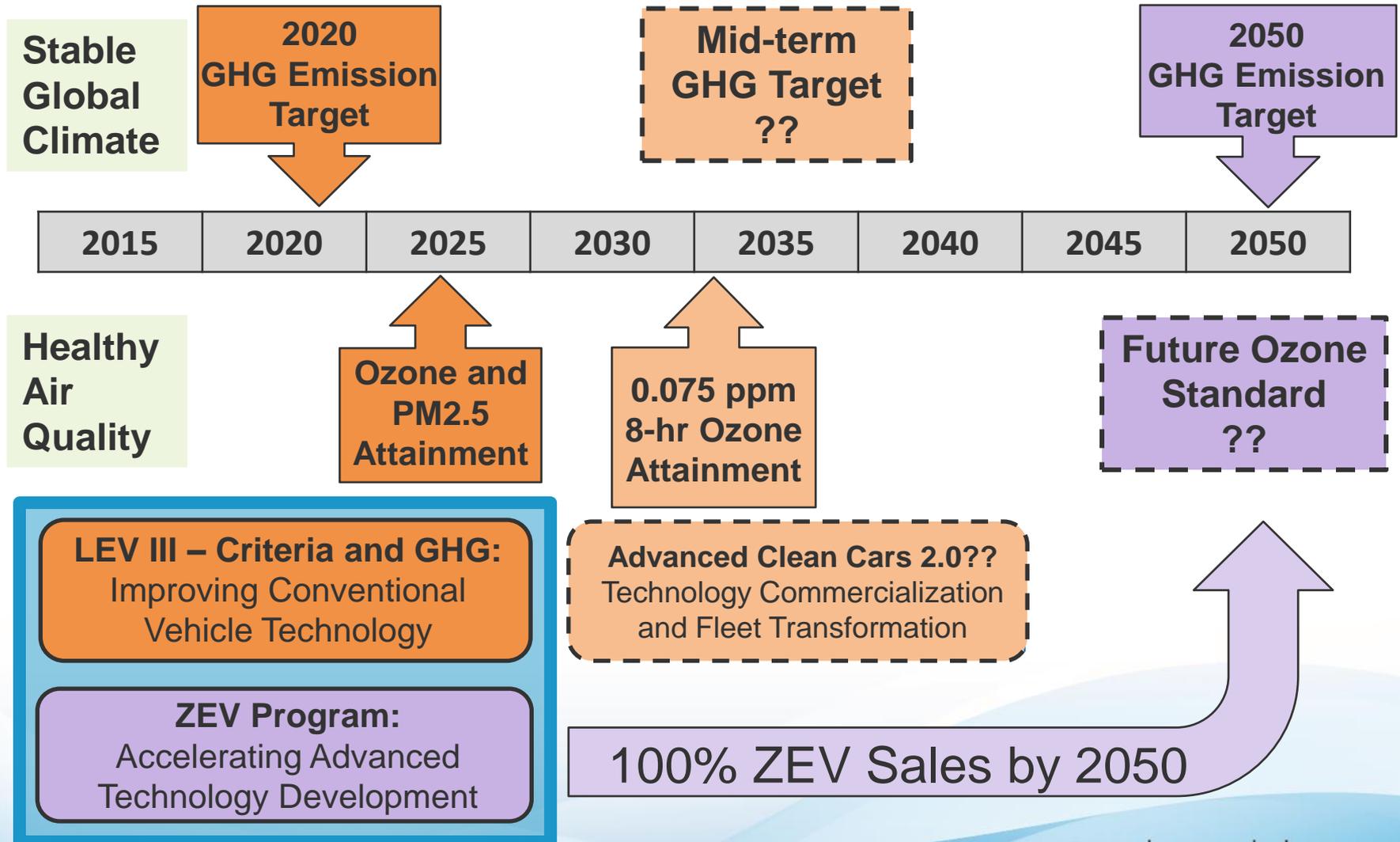
2014 Update to the Board: Advanced Clean Cars Program Midterm Review

**Diamond Bar, CA
October 23, 2014**

California Environmental Protection Agency

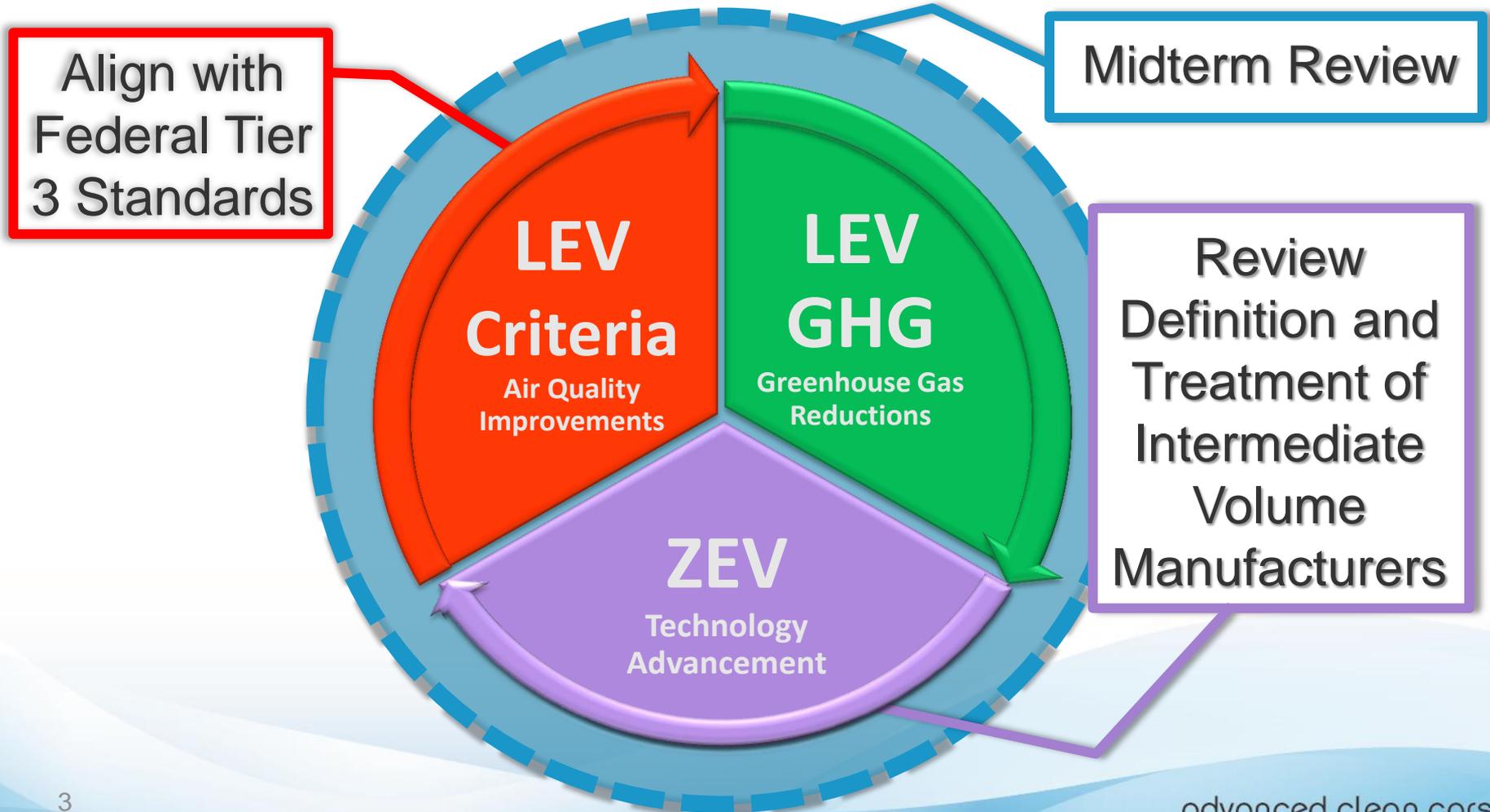
 **Air Resources Board**

Role of Advanced Clean Cars

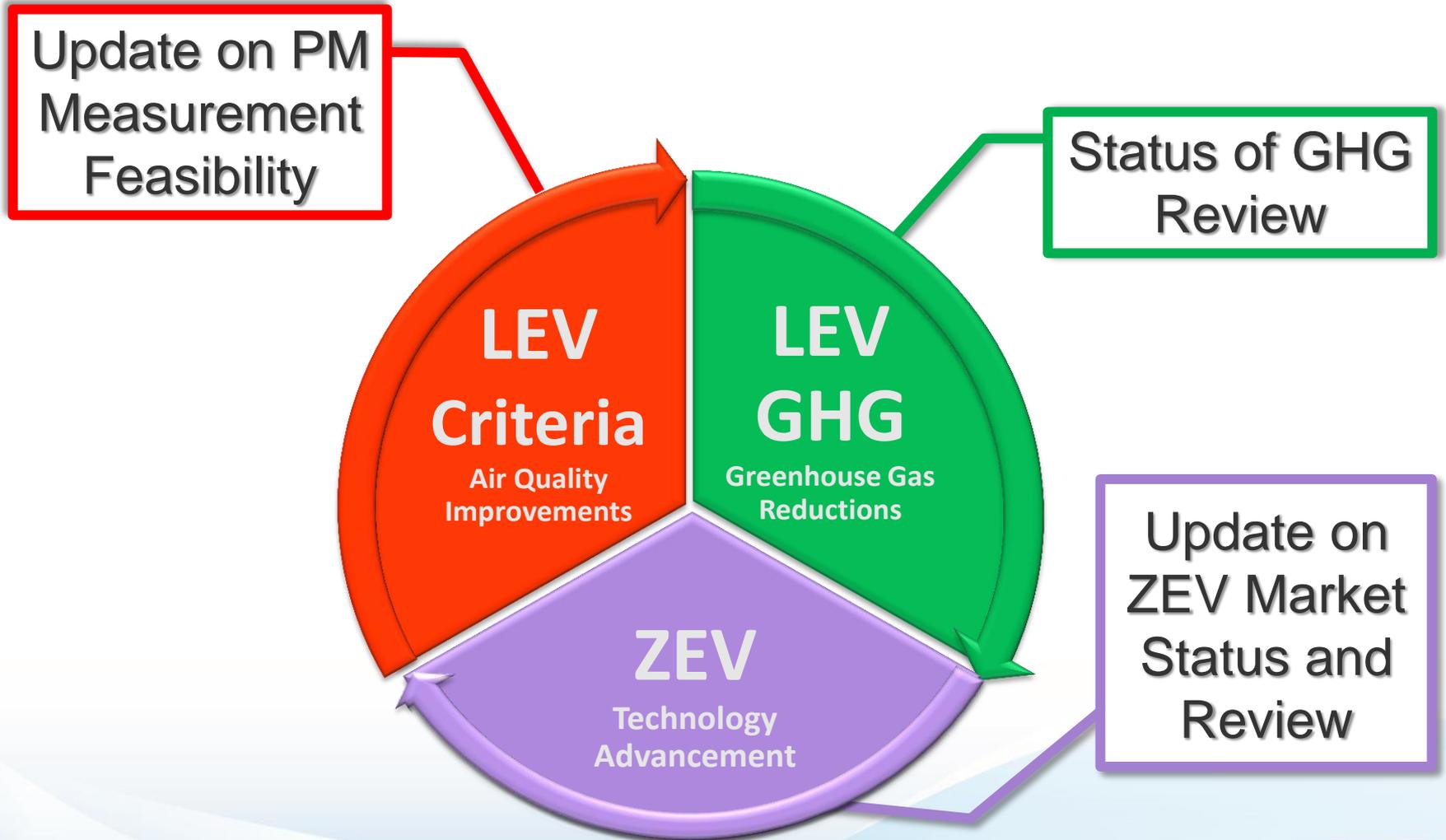


Advanced Clean Cars Program

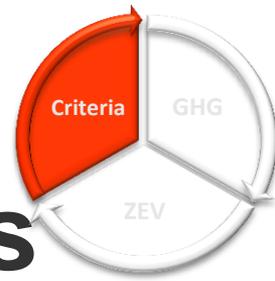
Multi-pronged approach to meeting mid- and long-term emission reductions from light- and medium-duty vehicles



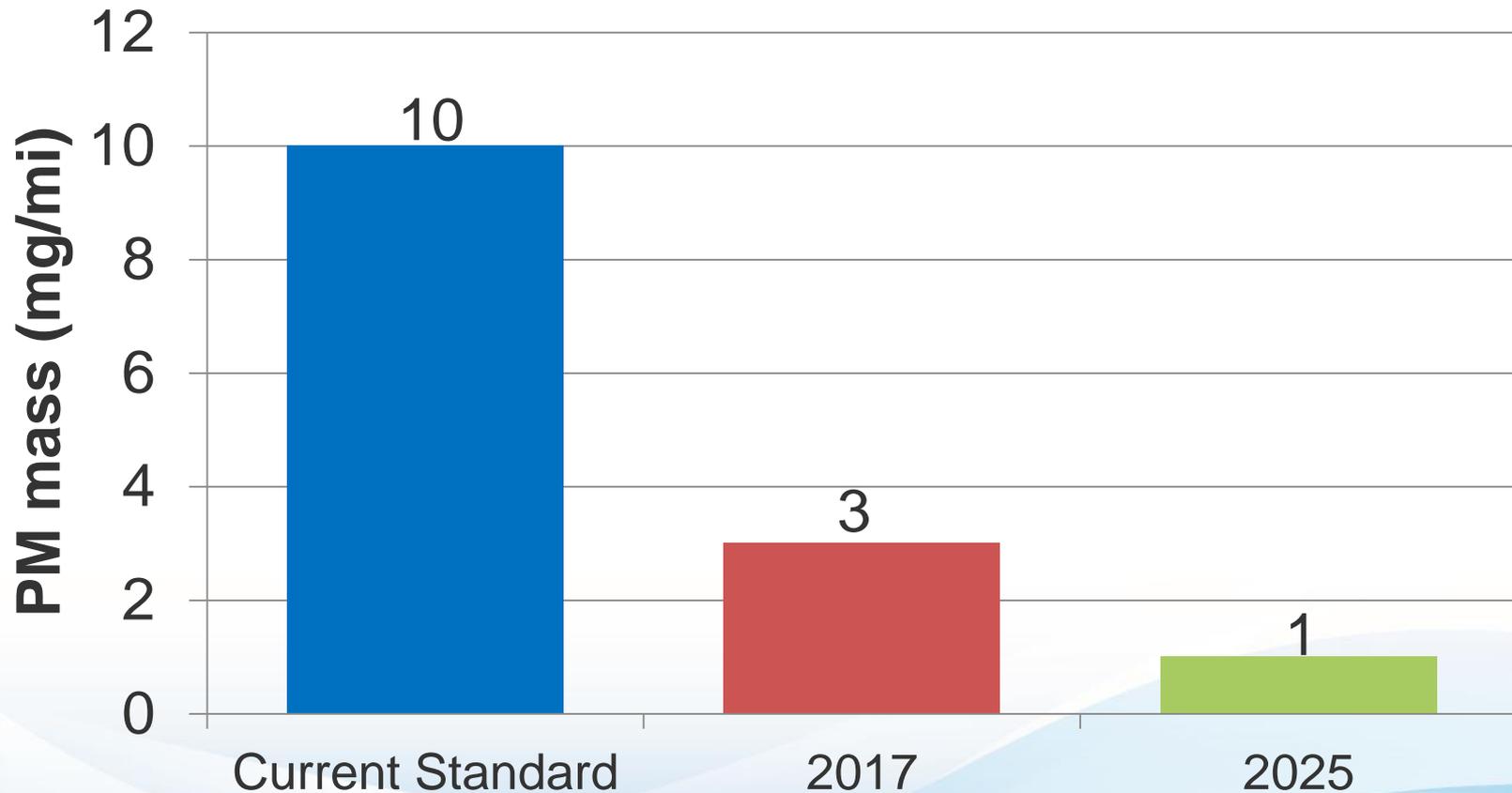
Today's Update on the Midterm Review



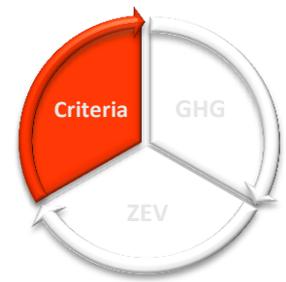
LEV III PM Standard: Continuing Low PM Emissions



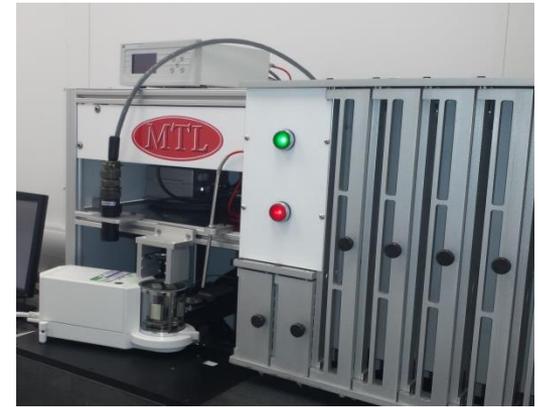
Board Direction: Confirm measurement capability for 1 mg/mi and re-assess vehicle feasibility and implementation timing



PM Measurement Capability Status

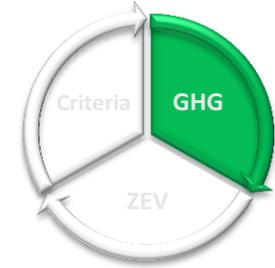


- Investigating measurement:
 - repeatability, uncertainty, precision, and
 - alternative methods (e.g., particle number)
- Collaborating with U.S. EPA and industry
- On track to confirm capability of mass measurement for 1mg/mile standard
 - With minimal refinement, existing method appears sufficient
- Continuing test programs and outreach efforts
 - Publish findings in peer-reviewed journals
- Full report in October 2015 on findings

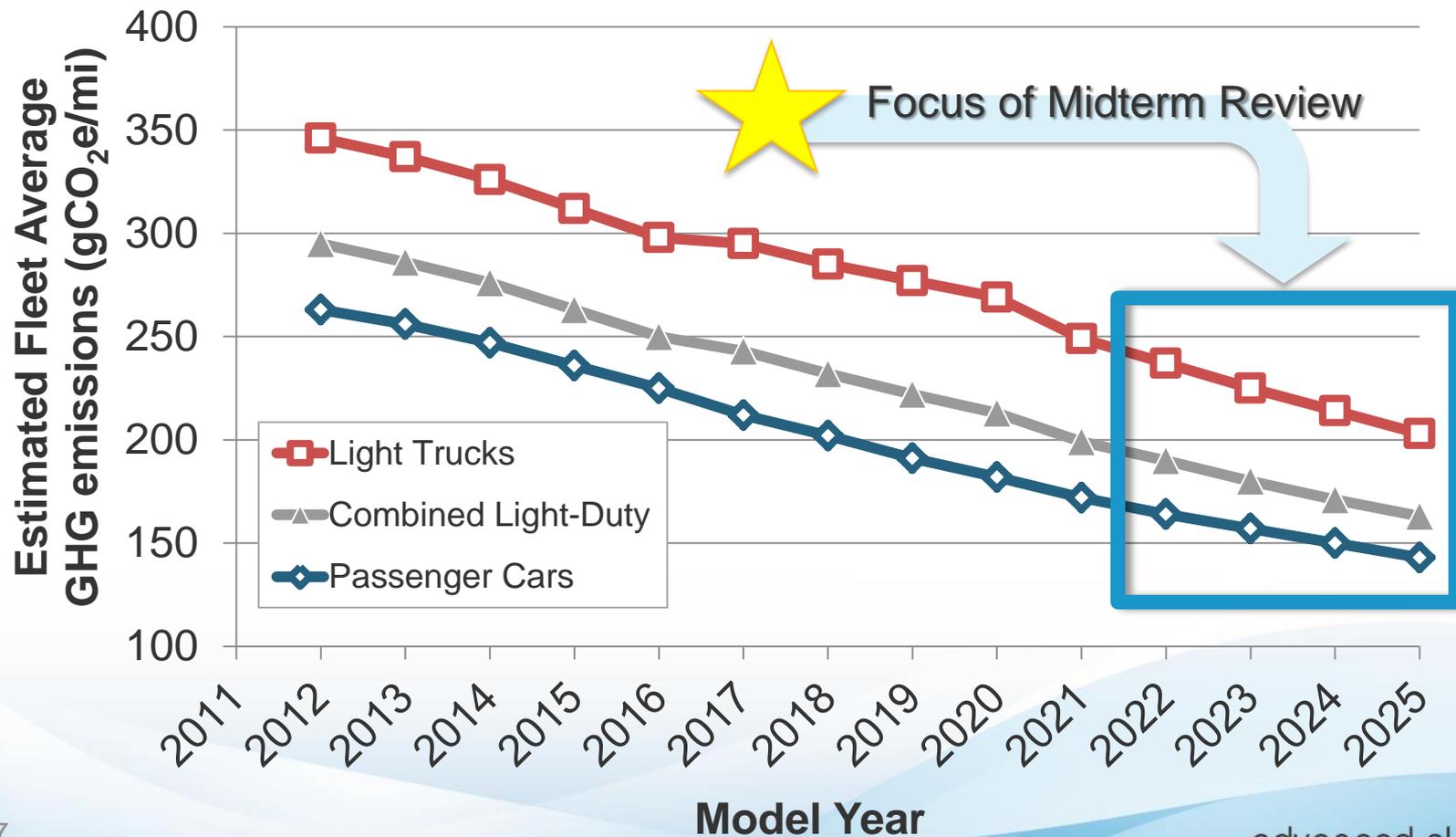


PM Weighing System

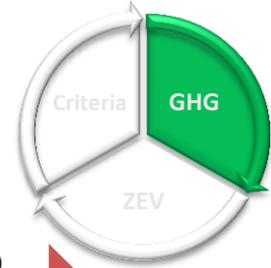
One National GHG Program: Meeting Climate Goals



Board Direction: Collaborate with Federal partners on appropriateness of standards and report on CA-specific fleet trends



Extensive Work in Progress by ARB and Federal Partners



Refinement of Vehicle Simulation and Models

Testing and benchmarking of advanced engines and drivetrains

Update Technology Assumptions and Costs

Teardowns of new vehicle technologies

Load and mass reduction studies

Consumer Response

Review of market acceptance of emerging GHG technologies

Vehicle Safety

Vehicle attribute and safety analysis

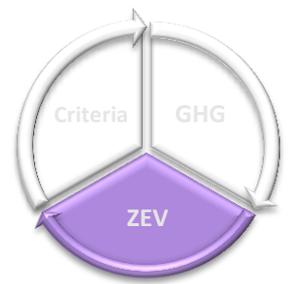


California Environmental Protection Agency

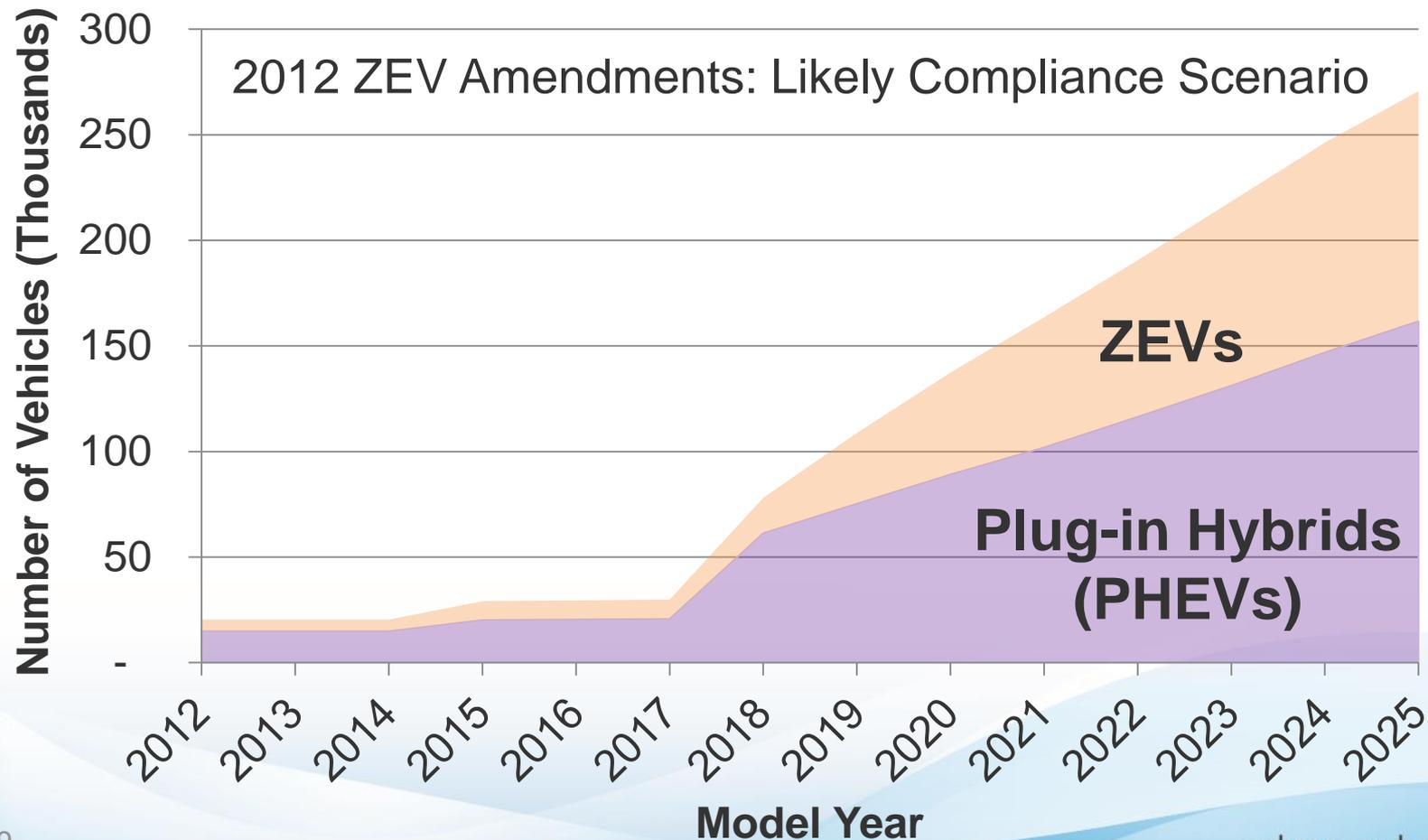
 **Air Resources Board**



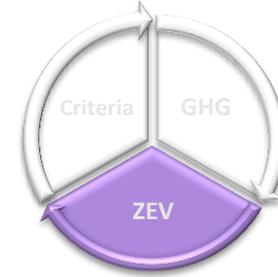
ZEV Regulation: Advancing The Market



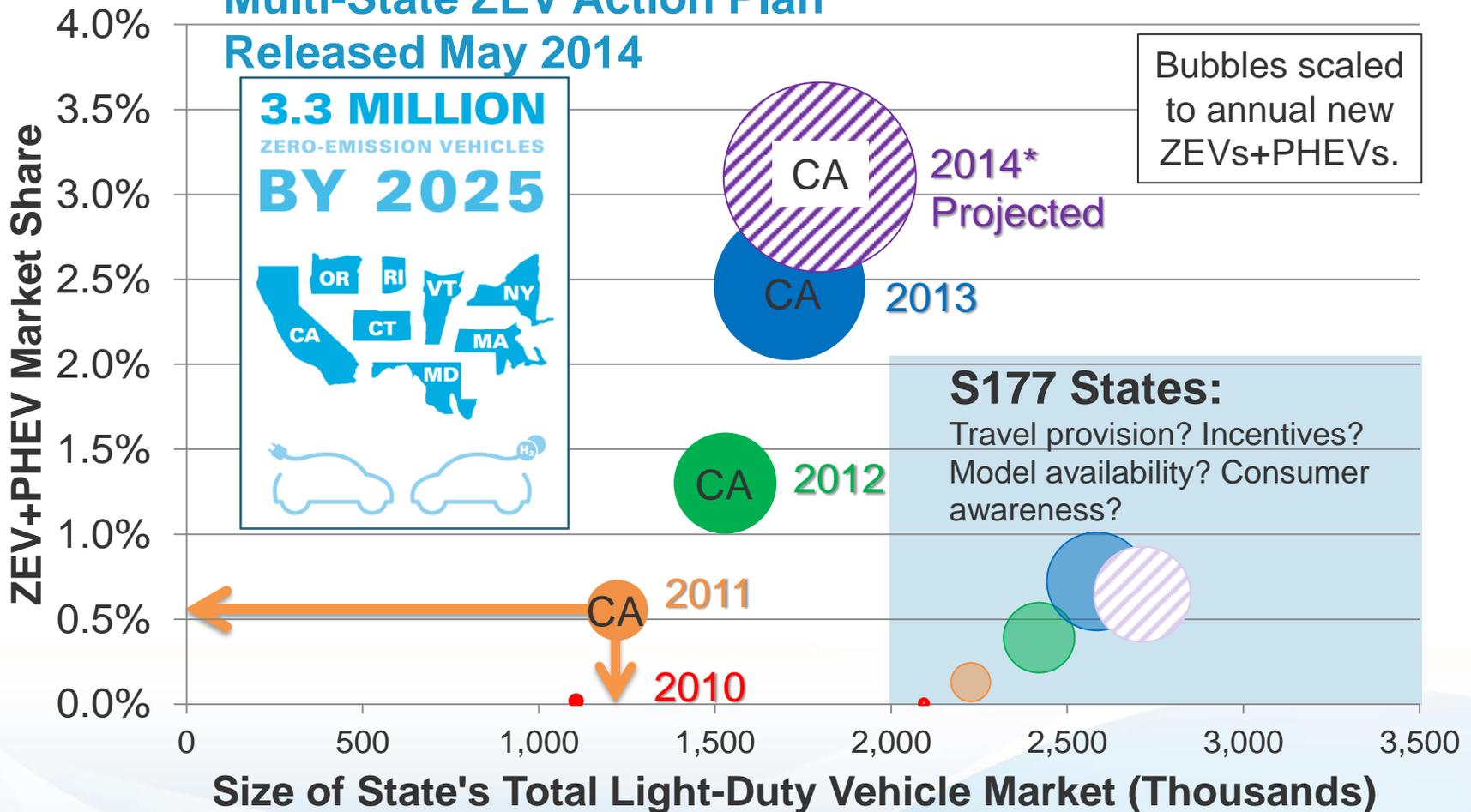
Board Direction: Evaluate ZEV regulation, considering consumer acceptance, charging behavior, and other market factors



Trends in California and Partner ZEV States



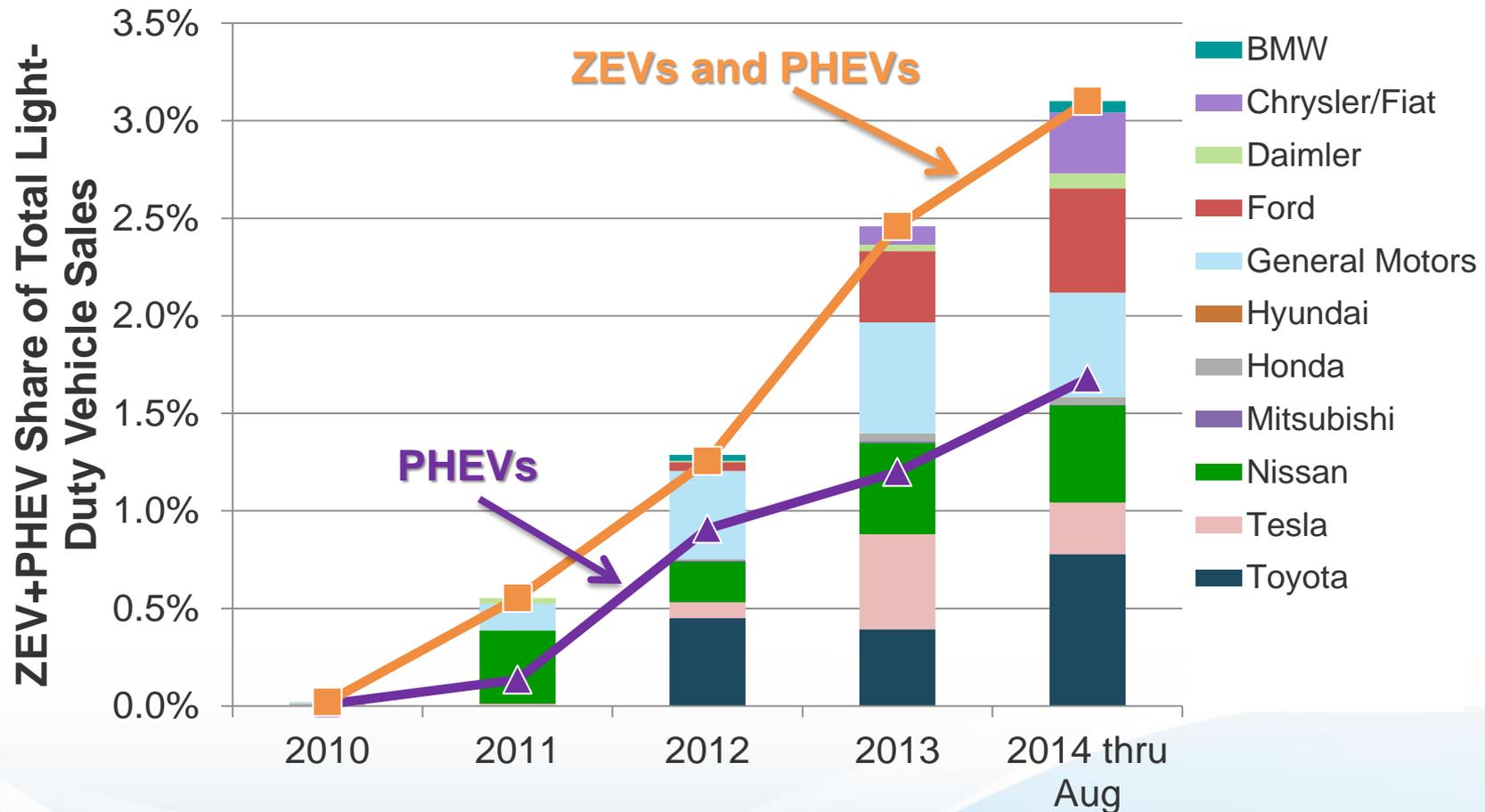
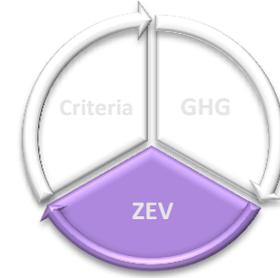
Multi-State ZEV Action Plan Released May 2014



Source: IHS Automotive, Polk new vehicle registrations for CY2010-2014 as of August 2014.

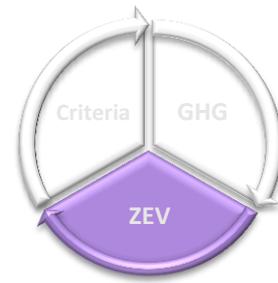
advanced clean cars

California's ZEV and PHEV Market Shares Growing

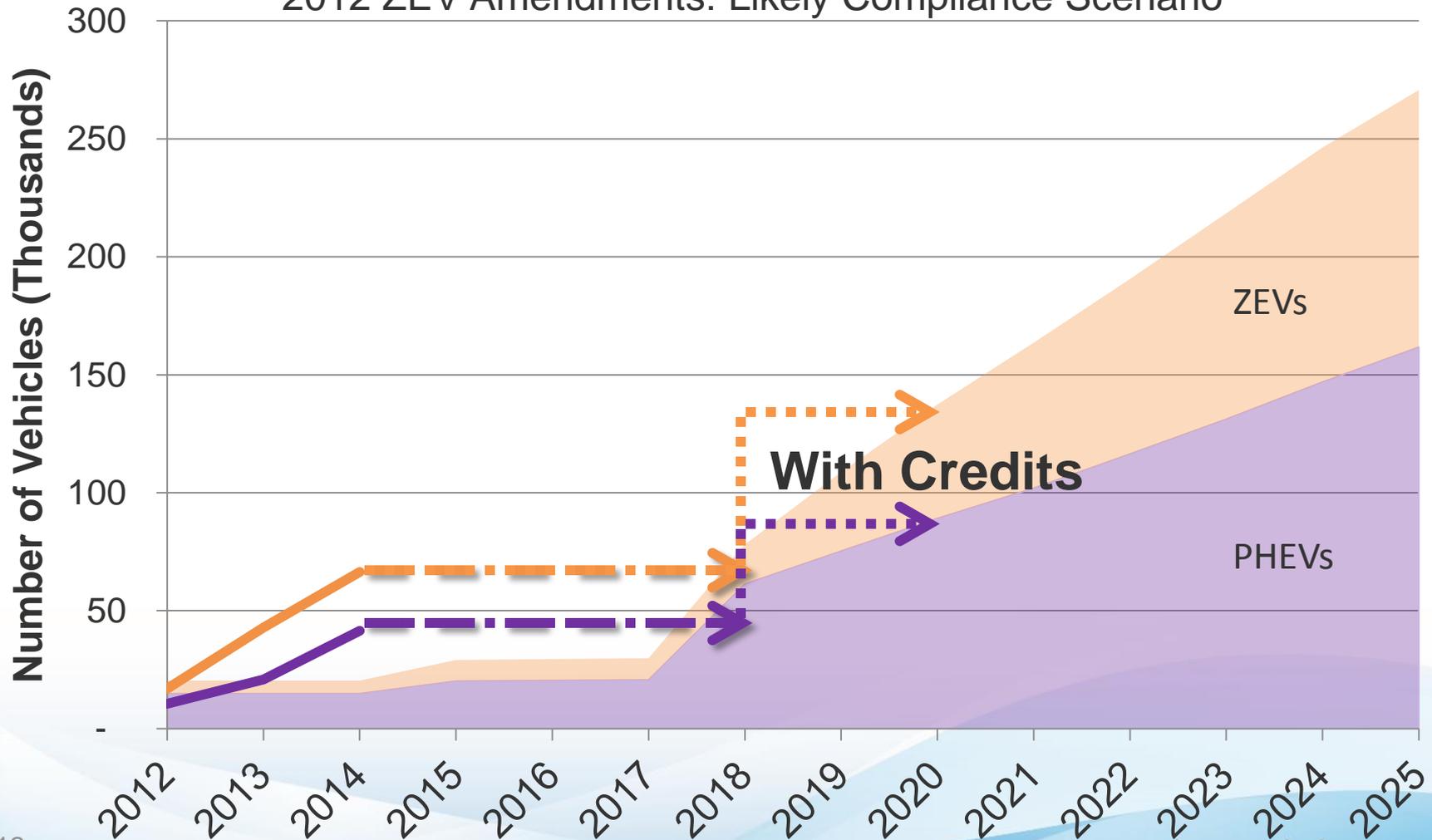


Source: IHS Automotive, Polk new vehicle registrations for CY2010-2014 as of August, 2014.

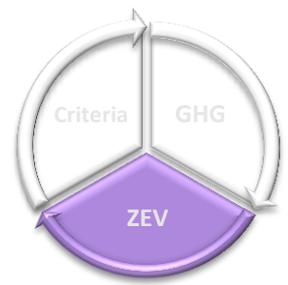
Current Sales Trends: Exceeding ZEV Requirements



2012 ZEV Amendments: Likely Compliance Scenario



Work in-progress on ZEV Review



Technology

Update technical and cost assumptions for ZEV technologies

Emissions/Driving Behavior

Analyze OEM provided trip and charging data

In house PHEV testing

Household vehicle usage and charging study

Consumers

New car buyer surveys

Examining California's ZEV market factors

Used ZEV market and buyer study

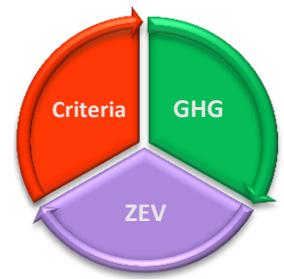
Sales Trends

Continued analysis of various data sources for California and S177 States

Infrastructure

Evaluation of existing and projected needs for ZEV technologies in California and US

Summary



- Elements of midterm review include:
 - LEV III PM standard, GHG national program, and ZEV regulation
- Work is already underway including cooperation with our Federal partners
- Provide update to the Board in 2015 and review results in 2016
 - If warranted, regulatory recommendations in 2017