Electric Vehicle Markets In California

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California Air Resources Board

Up-Scaling Green Vehicles in Northern Europe
Copenhagen, Denmark
21-22 January, 2016

Outline

- California's Climate Programs
- Transportation Program Overview
- Role of ZEV Financial Incentives
- Role of Partnerships and Planning
- Role of ZEV Requirements

CALIFORNIA CLIMATE STRATEGY

An Integrated Plan for Addressing Climate Change

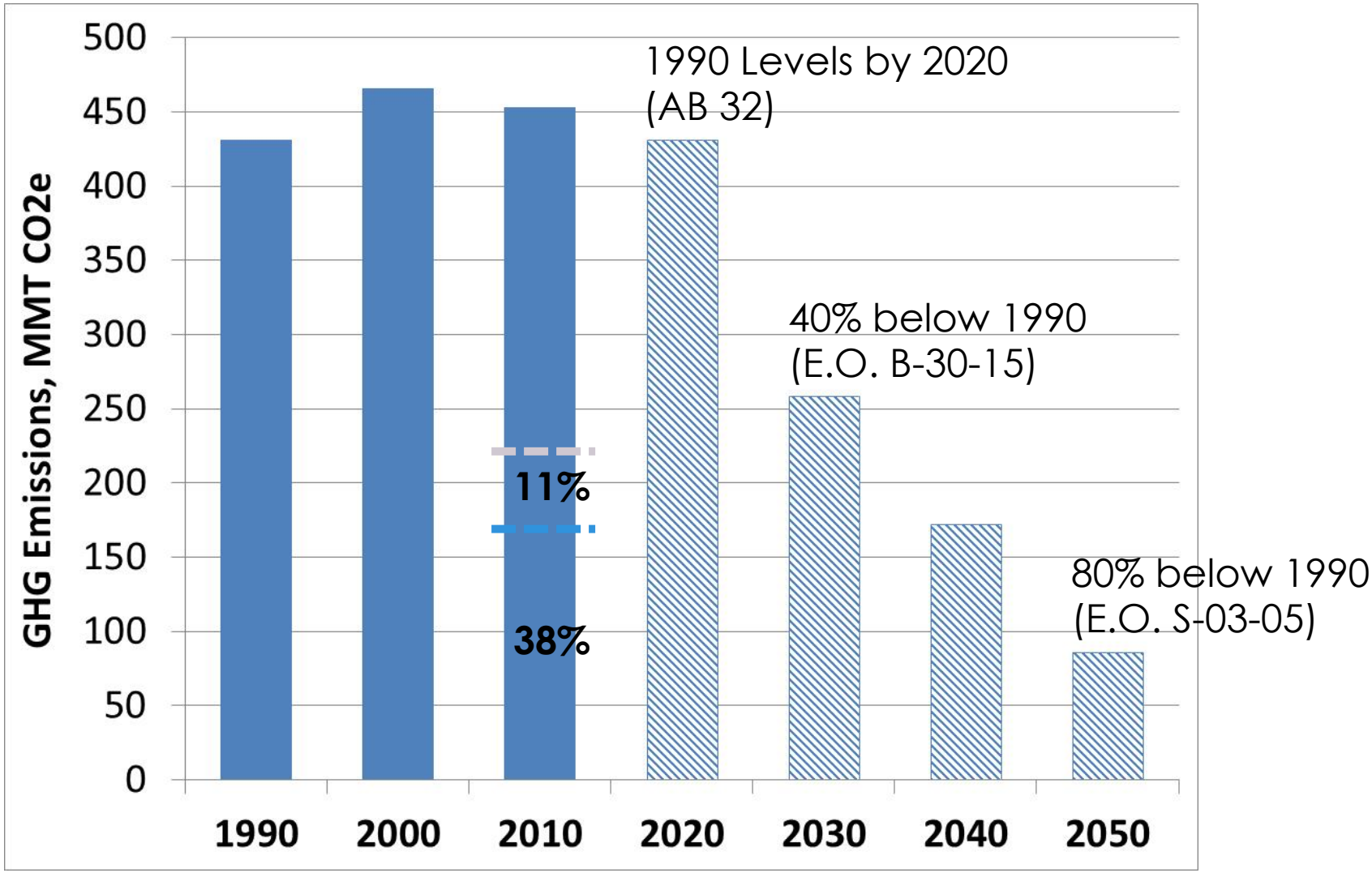
VISION

Reducing Greenhouse Gas Emissions to 40% Below 1990 Levels by 2030

GOALS

- 50% renewable electricity
- 50% reduction in petroleum use in vehicles
- Double energy efficiency savings at existing buildings
- Carbon sequestration in the land base
- Reduce short-lived climate pollutants
- Safeguard California

Statewide GHG Progress; Targets



Transportation (vehicle)
Trans. Fuels (upstream)
Historic GHG Inventory
Emission targets & projections

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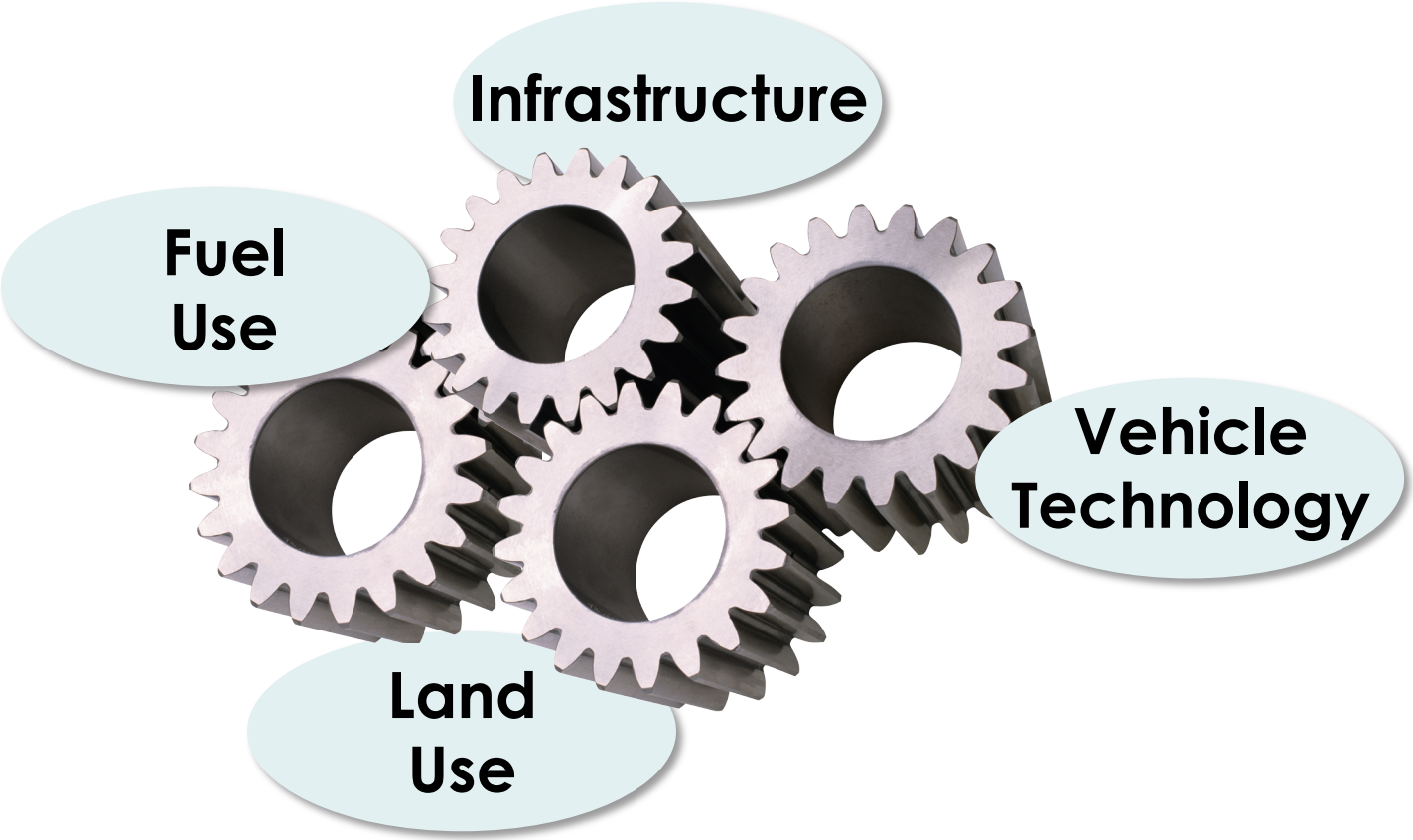
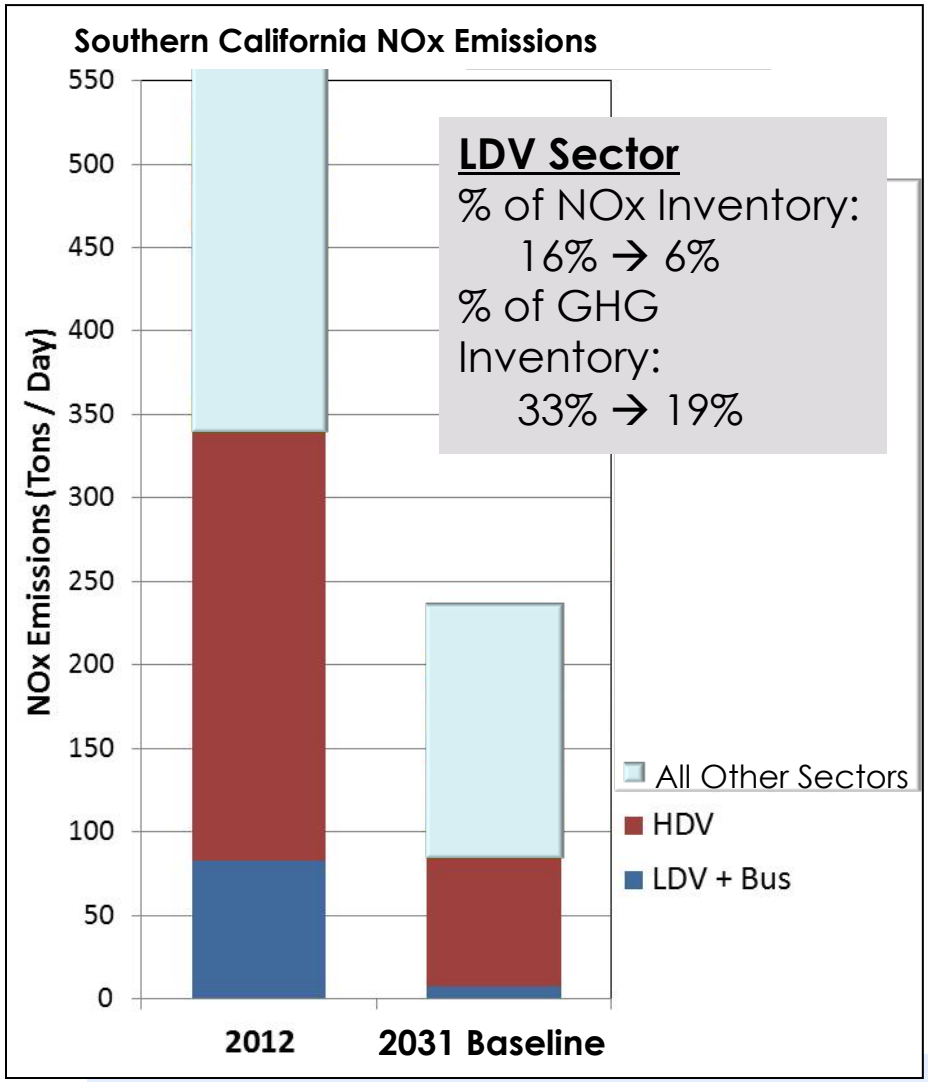
Transportation Overview

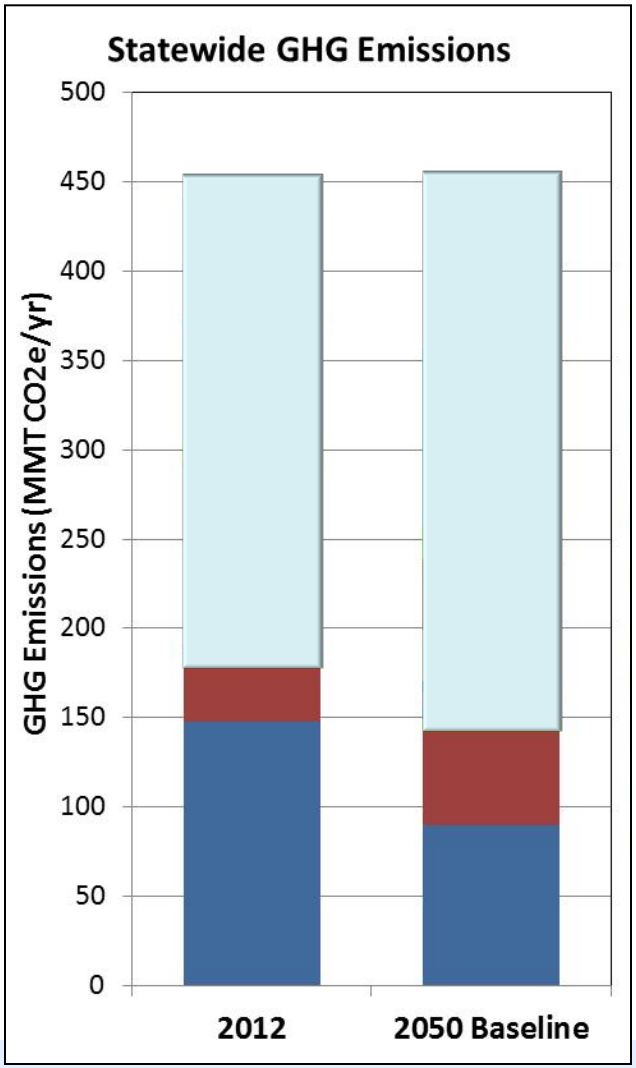
The Transportation Sector



An Interwoven Transportation "System"

Projected Progress to Targets





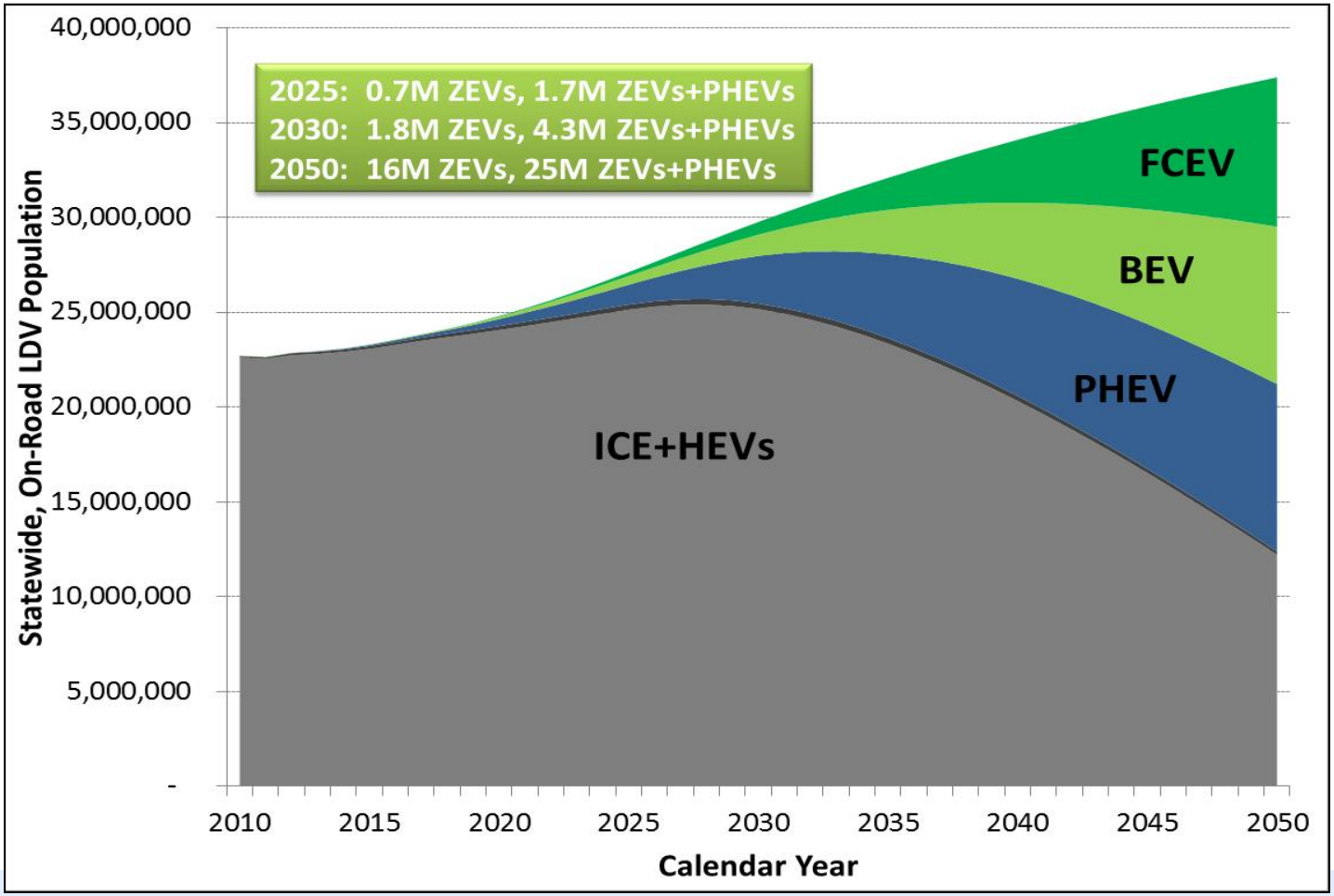
Existing Light Duty Vehicle Prgms

- **Regulations**: *Advanced Clean Cars rules to 2025*
  - Criteria Emission Fleet Standards - 70% reduction in NOx *
  - GHG Emission Fleet Standards - 25% reduction in GHG *
  - Zero Emission Vehicle (ZEV) Mandate – 15% New Sales
- **Incentives**: *Vehicle Purchase Rebates; Pilot Projects*
- **Regional Planning**:
  - H2/EV station siting; Consumer education & awareness
- **Partnerships**:
  - CA Fuel Cell Partnership (CaFCP); CA Plug-in Electric Vehicle Collaborative (PEVC)
  - State ZEV Action Plan (multi-agency partnerships)

** 2012 to 2025*

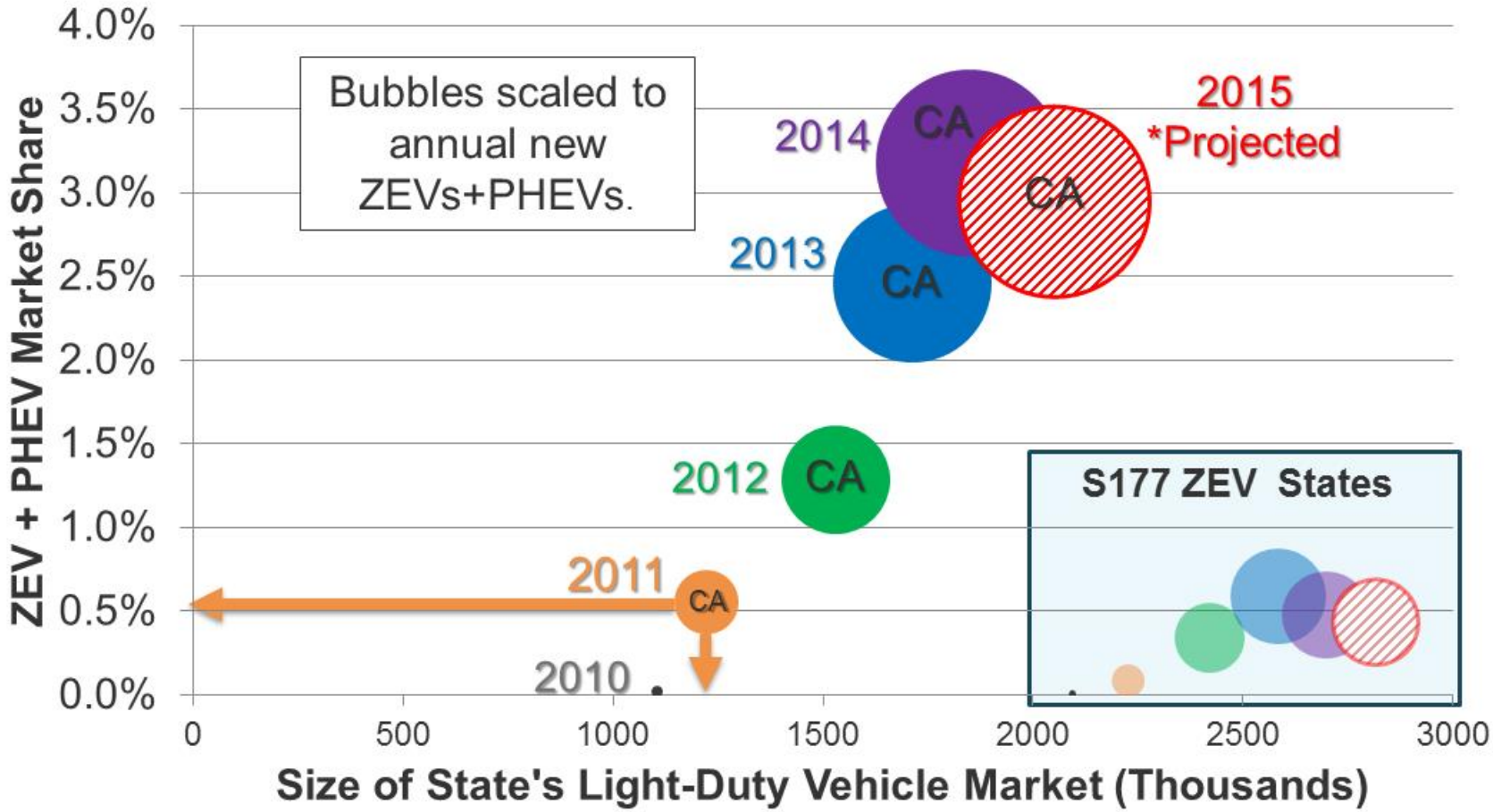
Scenario Analysis: Exploring strategies to achieve targets

Advanced technology fleet penetration is essential strategy



100% of sales by 2050 are ZEVs & PHEVs

ZEV Sales in CA and Partner States



Source: IHS Automotive, Polk new vehicle registrations for CYE2010-14. *2015 projections based on ARB calculations, using IHS Automotive, Polk new vehicle registrations for January 2015 through August 2015.

Role of ZEV Financial Incentives

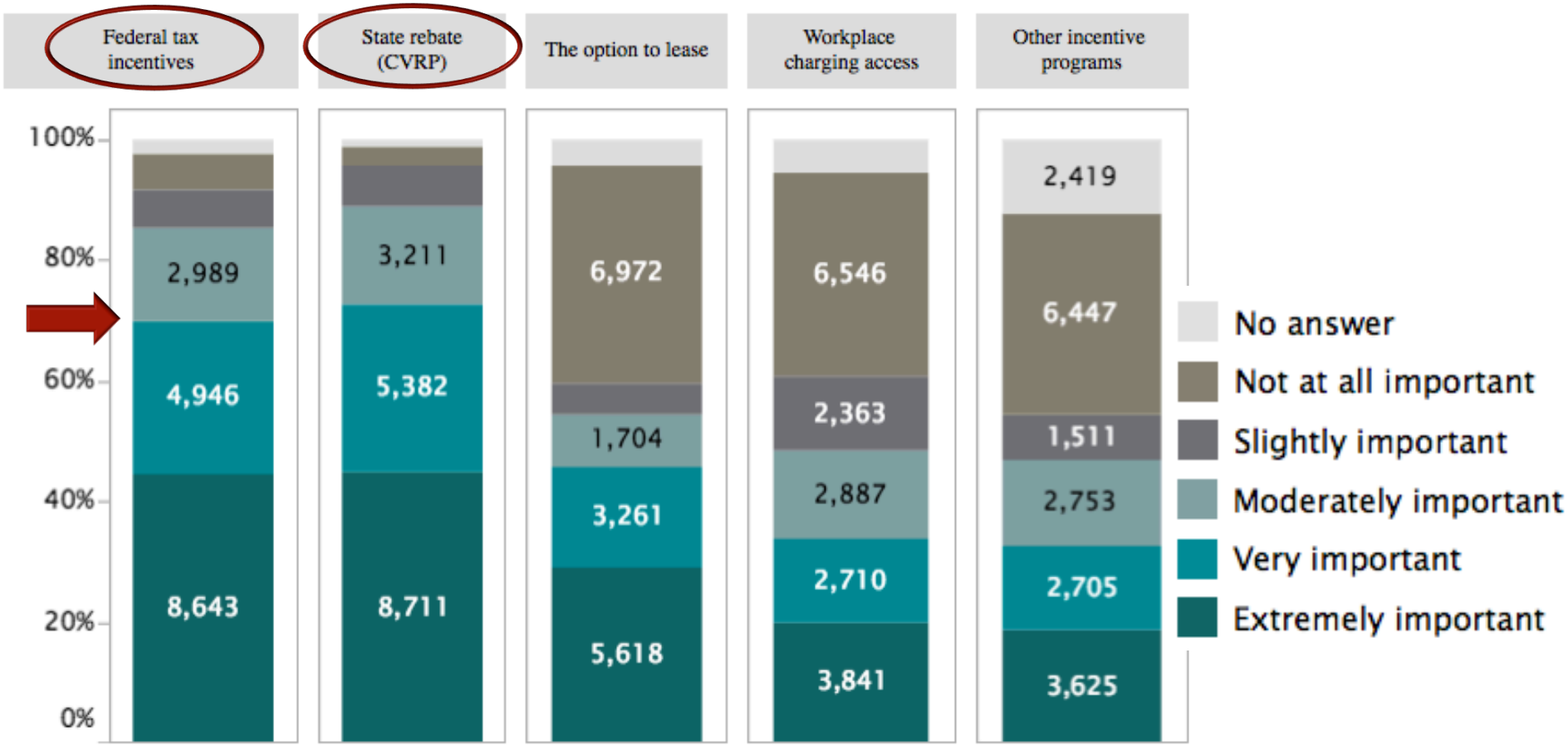
Light-Duty Vehicle Incentives

- Clean Vehicle Rebate Project (CVRP):
  Statewide consumer rebates for ZEVs and plug-in hybrids
  - 130,000 rebates for $280 million since 2010
  - Income cap + higher rebates for lower-income consumers (2016+)
  - Complementary fueling infrastructure investments

- Pilot Projects to Benefit Disadvantaged Communities:
  - Car scrap and replacement
  - Car sharing
  - Financing assistance
  - Increased CVRP rebates for public fleets

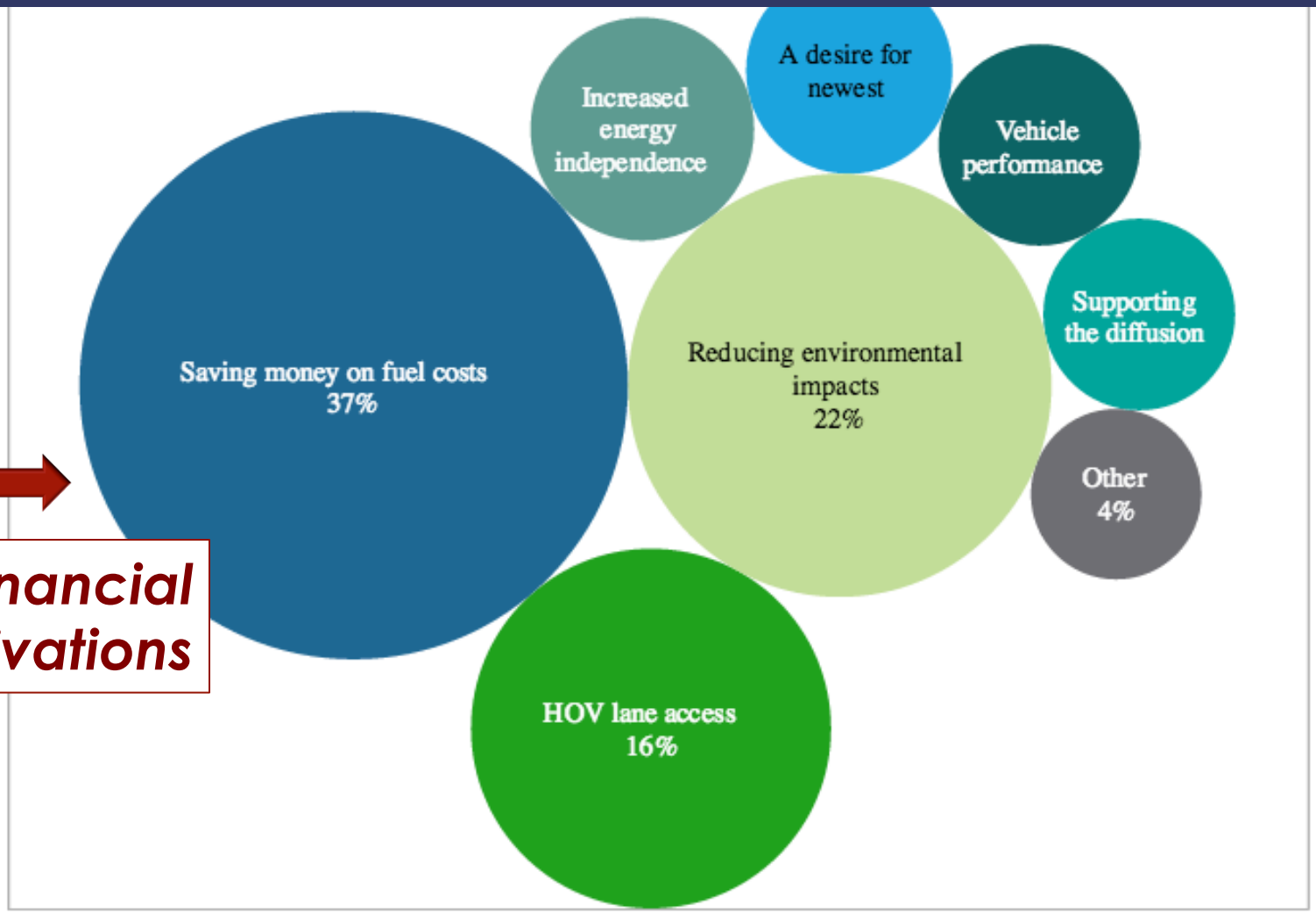
Survey of new EV Buyers: "Importance of factors that made it possible to acquire EV"

$ 7,500/veh $ 2,500/veh (BEVs)



Source: California Air Resources Board Clean Vehicle Rebate Project, EV Consumer Survey Dashboard. Retrieved January 12, 2016 from http://cleanvehiclerebate.org/survey-dashboard. Surveys were collected between October 25th, 2013 and June 23rd, 2015.

Survey of new EV Buyers: "Most Important Reason to Acquire an EV"



Financial Motivations

Source: California Air Resources Board Clean Vehicle Rebate Project, EV Consumer Survey Dashboard. Retrieved January 12, 2016 from http://cleanvehiclerebate.org/survey-dashboard. Surveys were collected between October 25th, 2013 and June 23rd, 2015.

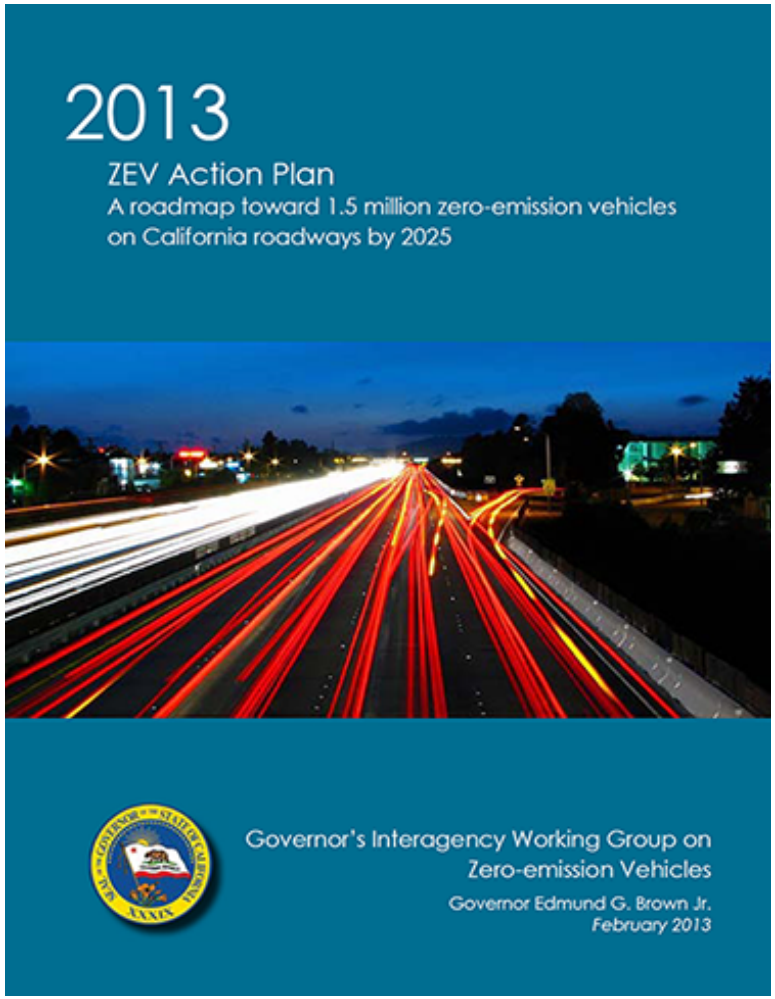
Additional Incentives

- EV Charging equipment purchase rebates
- Access to drive in car pool lanes (HOV)
- Free electric charging at many public sites
- Free parking in many facilities

Role of Partnerships & Planning

Aligning State Agencies: California ZEV Action Plan

- Governor Brown's Target: 1.5 Million ZEVs by 2025
- Coordination across government agencies
- Consumer Awareness
- Fuel Infrastructure
- Local gov't ZEV readiness planning



The Role of Public-Private Partnerships

Bringing diverse stakeholders together in a non-regulatory environment to jointly address market barriers and gaps

California FUEL CELL PARTNERSHIP

DRIVING FOR THE FUTURE

Promoting the commercialization of hydrogen fuel cell vehicles

CALIFORNIA PLUG-IN ELECTRIC VEHICLE COLLABORATIVE

Accelerating the adoption of PEVs in California

Source: California PEV Collaborative (CG1-5).

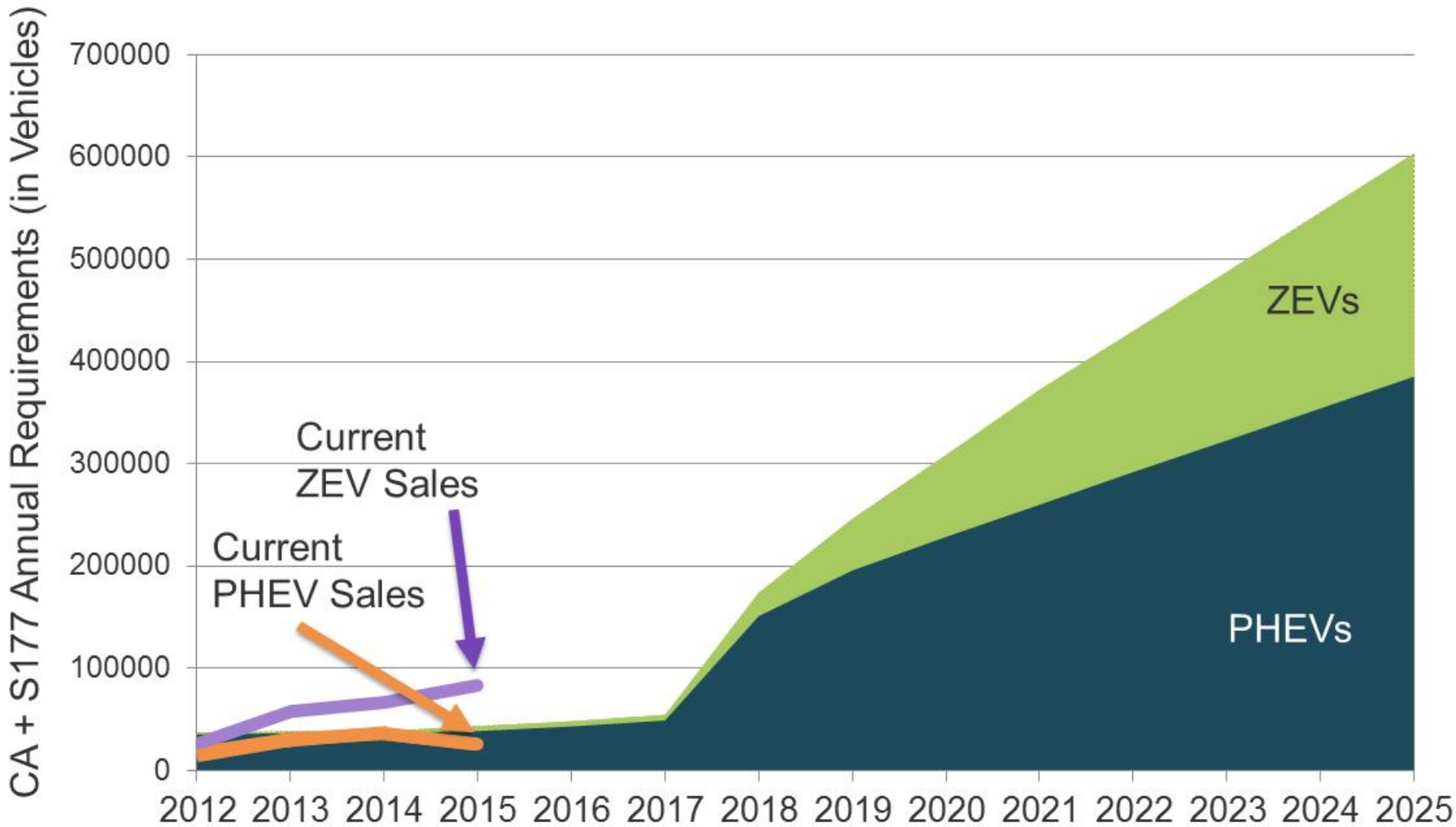
International Cooperation

- **International ZEV Alliance**
  - A collaboration of leadership nations and subnational jurisdictions in partnership with the International Council on Clean Transportation (ICCT)
  - Work together on target-setting and action plans
  - Promote ambition for ZEVs and global climate negotiations

- **Additional partnerships with California to accelerate commercialization of ZEVs**
  - China-US ZEV Policy Lab
  - Letter of Intent between California and the Netherlands
  - Letter of Intent between California and Québec Province

Role of ZEV Regulation

ZEV Requirements to 2025



Automakers required to comply

Largest: Must Make pure ZEVs (BEV, FCV)

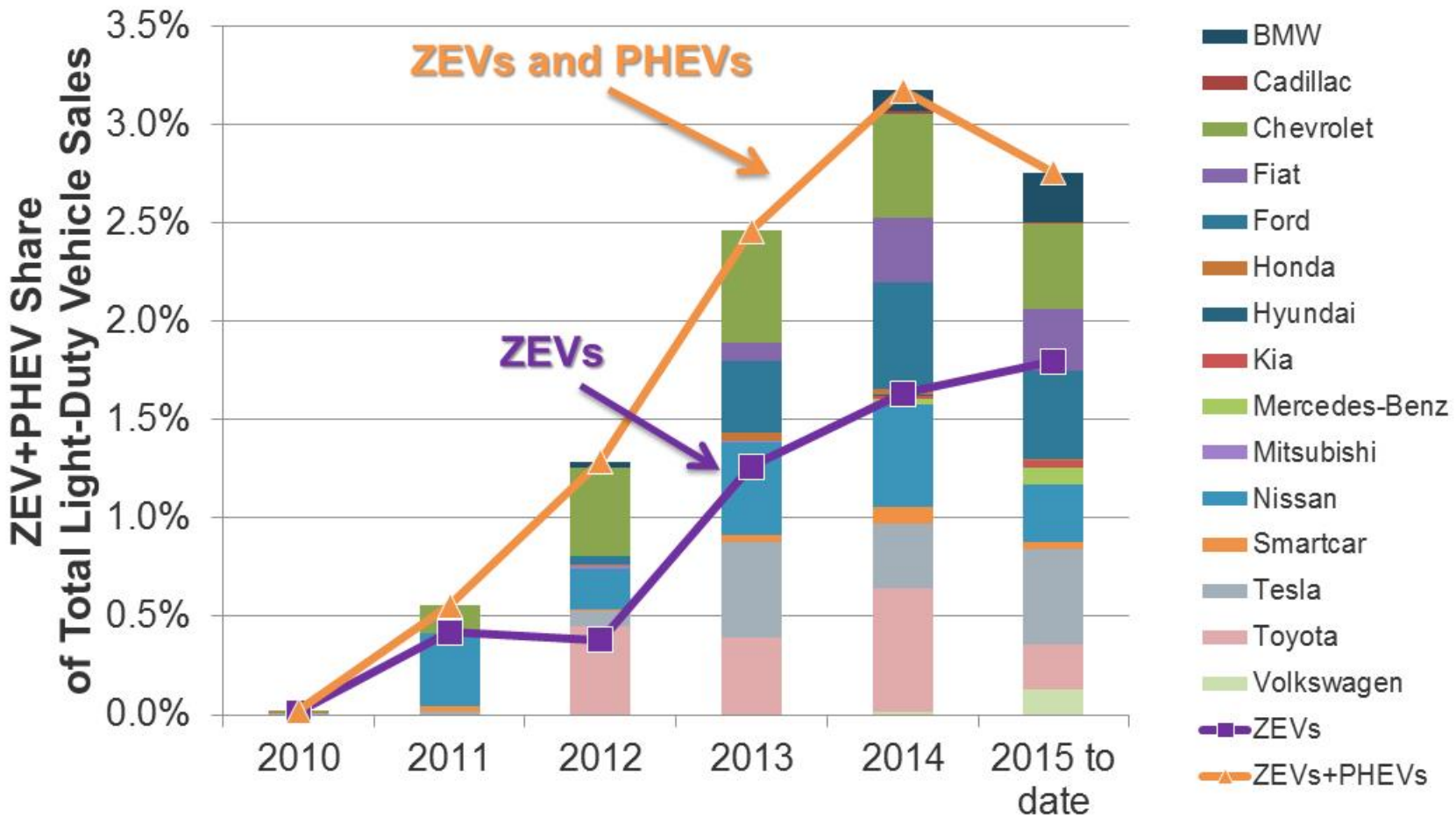
- Chrysler
- Ford
- GM
- Honda
- Nissan
- Toyota
- BMW
- Hyundai
- Kia
- Mercedes
- Volkswagen

> 20,000 sales/ year

- Jaguar Land Rover
- Mitsubishi
- Volvo
- Subaru
- Mazda

Smaller: Can make PHEVs

CA Sales Driven by ZEV Program (Mandate and Incentives)



Source: IHS Automotive, Polk new vehicle registrations for CY2010-2015 as of August 2015.

Thank you!

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