

## DOCKETED

<b>Docket Number:</b>	17-IEPR-05
<b>Project Title:</b>	Transportation Energy Demand Forecast
<b>TN #:</b>	221883
<b>Document Title:</b>	Presentation - Mobile Source Strategies to address Climate and Ozone Requirements
<b>Description:</b>	12.04.2017: by Joshua Cunningham of California Air Resources Board
<b>Filer:</b>	Raquel Kravitz
<b>Organization:</b>	California Air Resources Board
<b>Submitter Role:</b>	Public Agency
<b>Submission Date:</b>	12/1/2017 3:08:35 PM
<b>Docketed Date:</b>	12/1/2017

# Mobile Source Strategies to address Climate and Ozone Requirements

**Joshua Cunningham**  
**Chief, Advanced Clean Cars Branch**  
**California Air Resources Board**

**December 4, 2017**

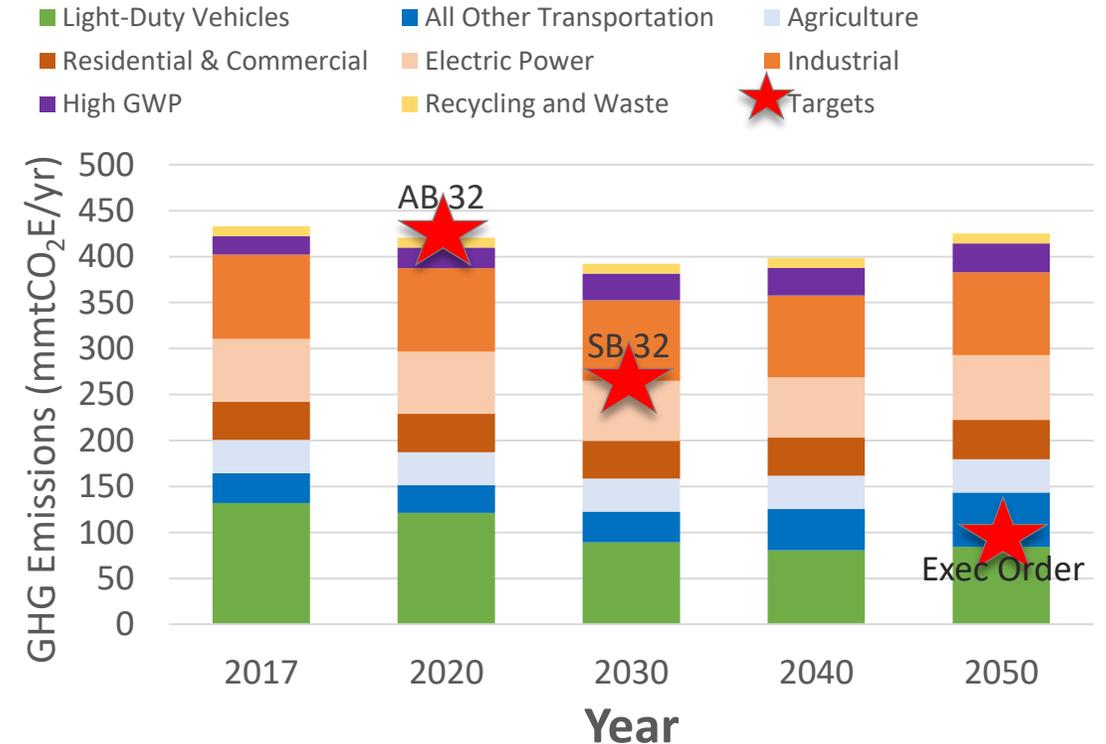
# Need large emission reductions beyond current programs

## NOx, South Coast Under Current Programs



Source: CEPAM 2016 SIP, <https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php>

## GHGs, Statewide Under Current Programs



Note: CARB 2030 Scoping Plan contains strategies for achieving 2030 GHG target, [https://www.arb.ca.gov/cc/scopingplan/2030sp\\_pp\\_final.pdf](https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf)

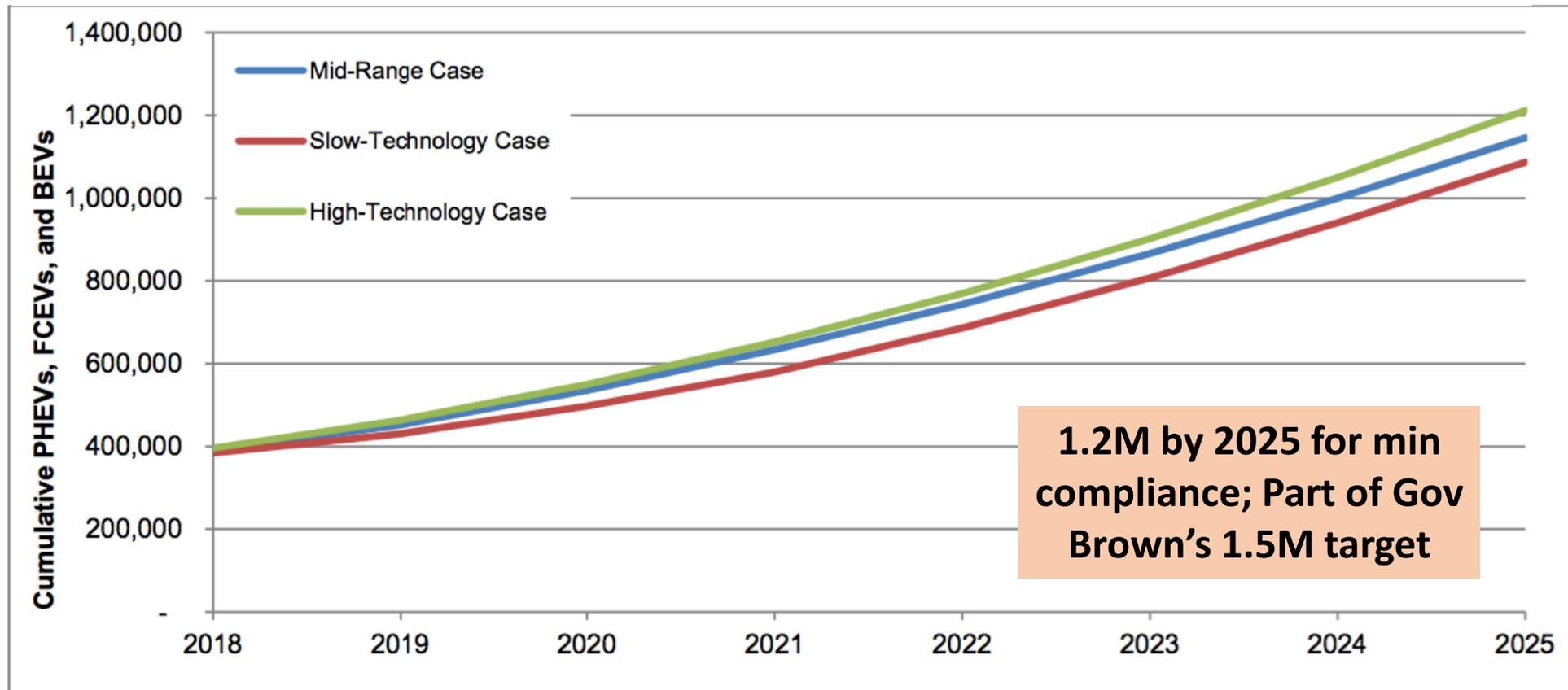
# Achieving success in transportation sustainability

- Promote vibrant communities and landscapes through better planning efforts to curb vehicle-miles-traveled and increase walking, biking and transit
- Build on the State's successful regulatory and incentive-based policies to quickly make clean cars, trucks, buses, and fuels definitive market winners
- Coordinate agency activities to ensure that emerging automated and connected vehicle technologies reduce emissions
- Improve freight and goods movement efficiency and sustainability to enable California's continued economic growth
- Connect California's communities with a state-of-the-art high-speed rail system



# Updated Minimum Compliance for LDV ZEV Regulation by 2025

*Cumulative sales, 2010 – 2025. See CARB's Midterm Review report, Jan 2017*

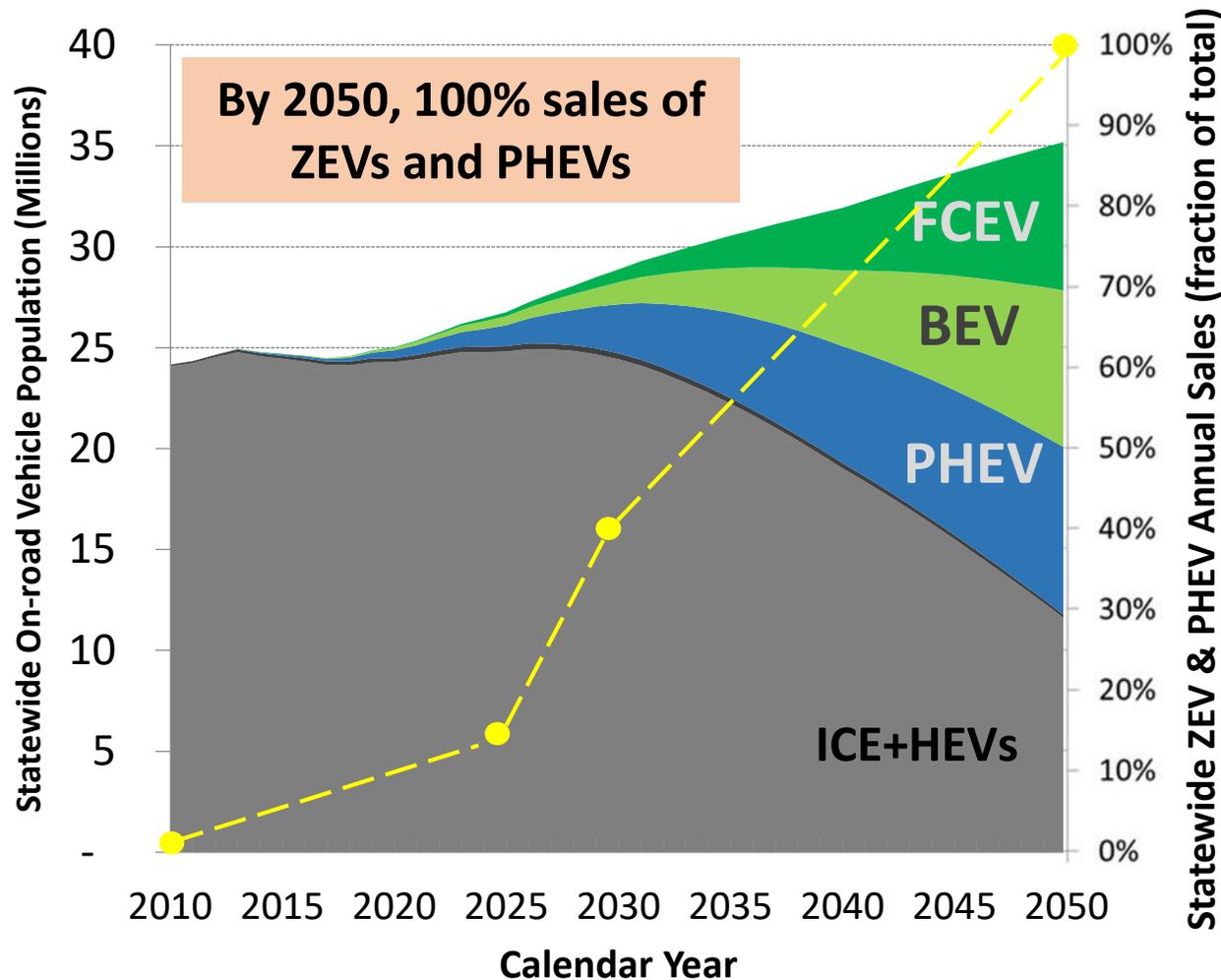


\*For each scenario, it is assumed 347,000 ZEVs and PHEVs have been placed in California through 2017 model year. See Section III.B.2 and Section V.C (Table 8).

# Scenario development to evaluate strategies for long-term emission reductions

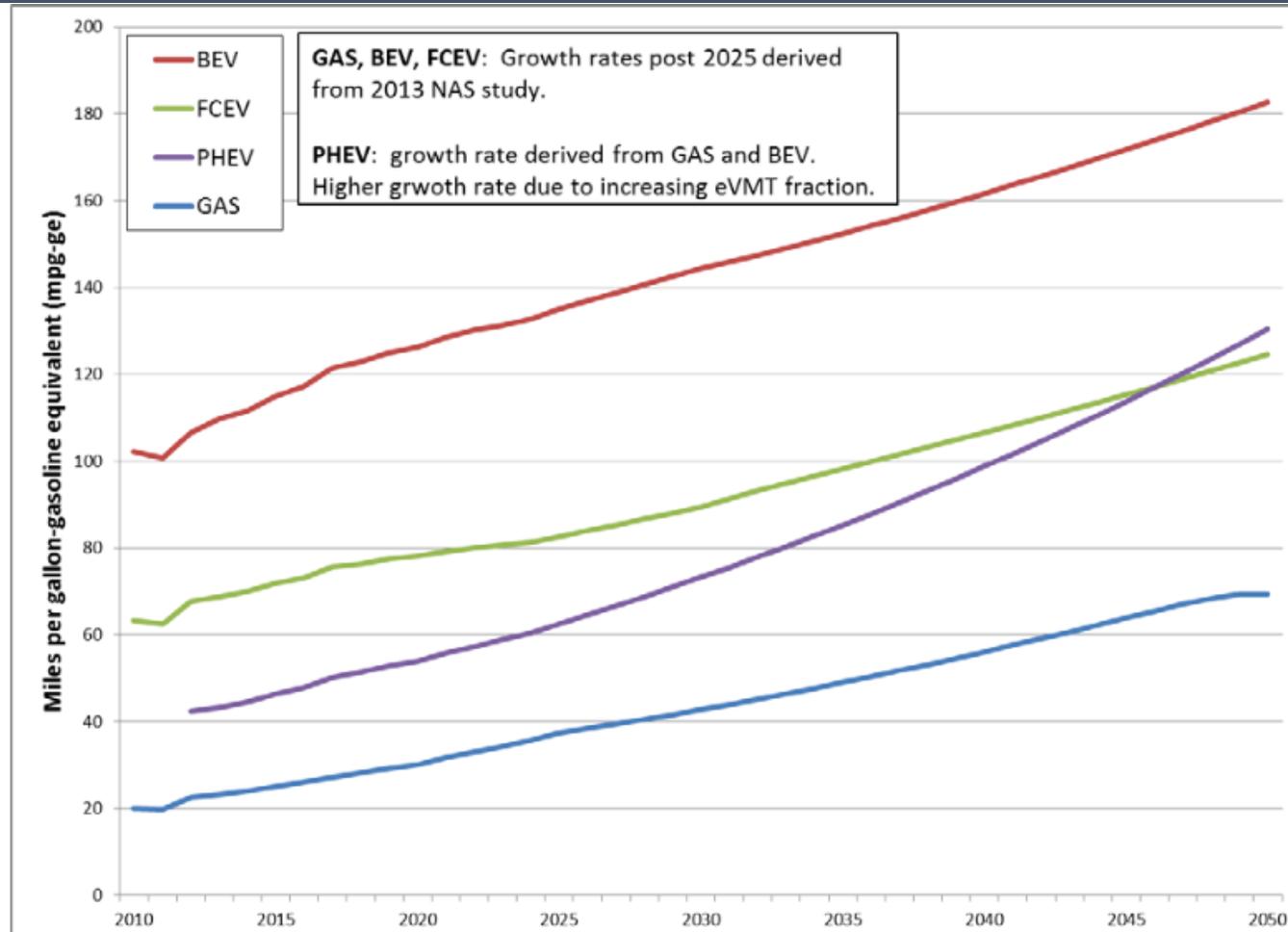
- CARB Vision modeling tool
- Current scenarios developed for Mobile Source Strategy report, released May 2016
- Same mobile source strategies used in 2017 Scoping Plan
- Updated light duty technology assumptions from Midterm Review (MTR) to be added to EMFAC 2017 and new Vision scenarios going forward

# What might the light duty sector need to do to achieve needed reductions?



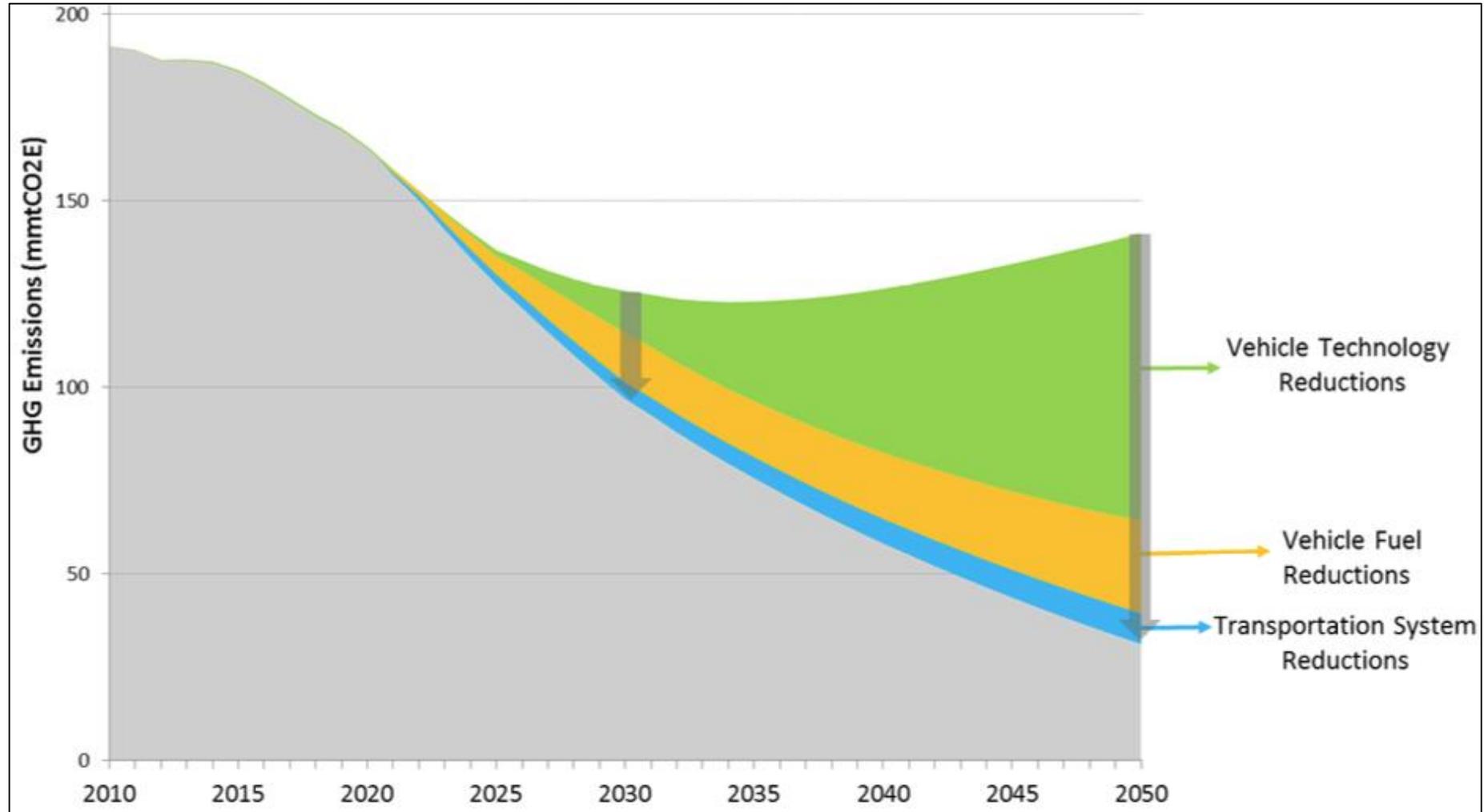
- Compared to MY2025 vehicles, MY2035 vehicle emissions would be:
  - ~50% lower GHGs (emission rate declines 5-7% year-over-year)
  - ~40% lower NOx
- Significant increases in renewable fuel feedstocks and energy supply
- Slower growth of vehicle miles traveled (VMT) from LDVs

# LDV Fuel Economy Projections by Tech Type



MPG-GE represents new vehicle fuel economy in real-world on-road conditions. GAS is a category that includes both gasoline and non-plug-in hybrid vehicles combined. The 2013 NAS Study is the 2013 National Academy of Sciences "Transitions to Alternative Vehicles and Fuels" Report

# Scenario statewide on-road GHG emissions *LDV and HDV well-to-wheel emissions*



# Sensitivity Scenario on PHEV sales and eVMT

*Sensitivity scenarios from CARB's Midterm Review report, Jan 2017*

