

International Partnership for Hydrogen and Fuel Cells in the Economy
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Fuel Cell and Hydrogen Pathways to Clean Cities:
A Stakeholder – Government Engagement

Clean Transportation and Energy Objectives

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Transportation energy transition



Benefits of Mobile Source Strategy

Smog Forming Emissions



80%

GHG Emissions



45%

Petroleum Usage



50%

Diesel PM Emissions

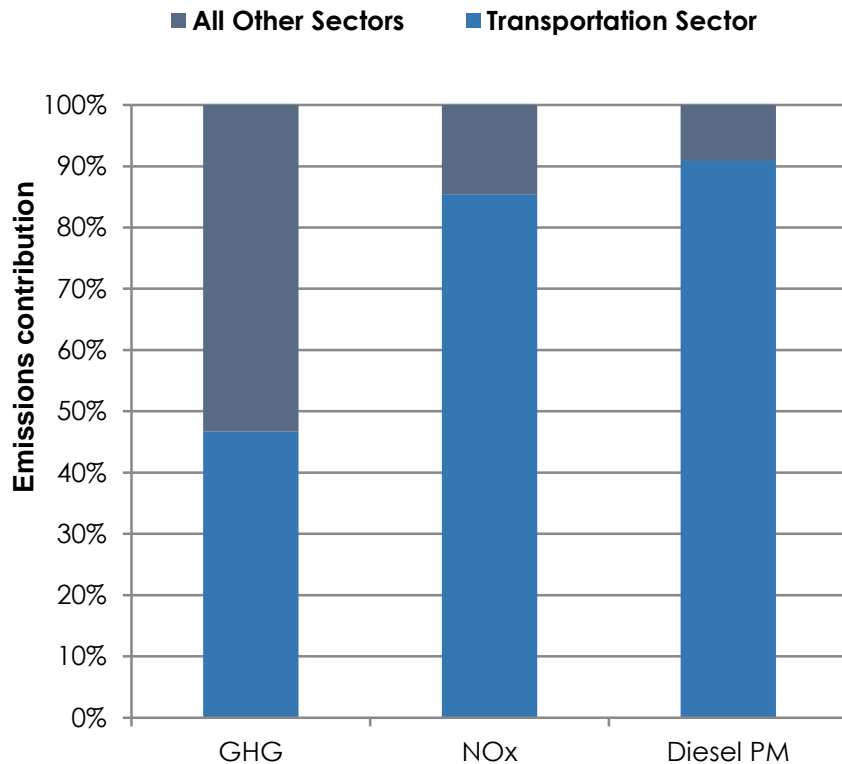


45%

Percent reduction by 2030/2031 from today

Key Environmental Policy Drivers

Mobile source share of emissions



- Clean air goals (meeting ambient air quality standards for ozone and PM2.5 in all regions of California)
- Achieving GHG reductions to meet 2020, 2030, and 2050 climate goals
- Reducing exposure to vehicle pollution, especially in our most impacted areas (e.g., near ports and freight corridors)

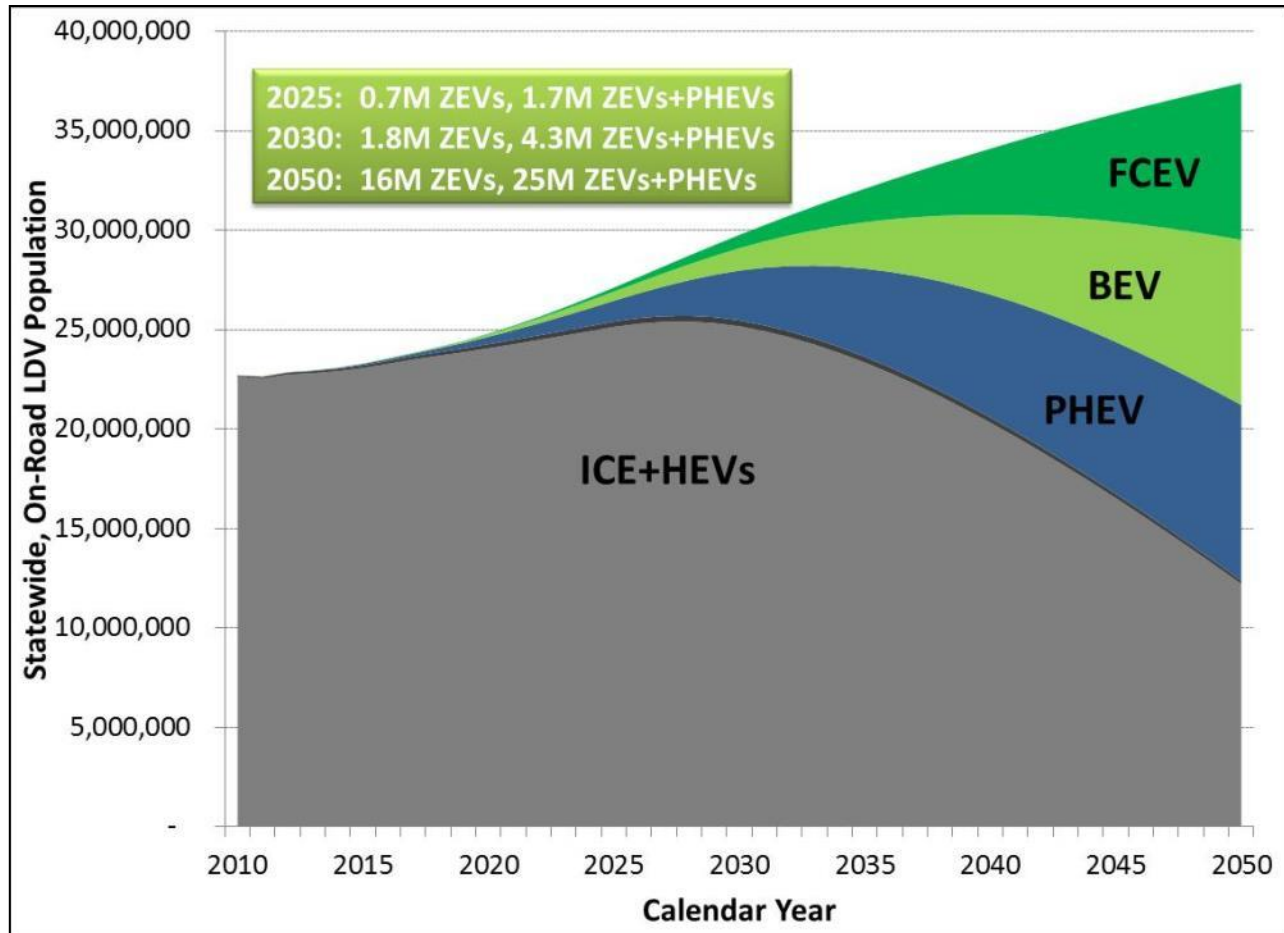
California's strategy for clean vehicles and equipment

- A balanced approach of regulations and targeted investments
- Achieve significant GHG reductions, increase vehicle efficiency, reduce petroleum use, and advance on technology-forcing goals through rapid electrification of the light-duty vehicle sector
- In the heavy-duty sector, reduce NOx emissions again by almost another order of magnitude and promote renewable fuel use
- Electrify buses, trucks, and other vehicles and equipment in targeted applications to achieve zero emissions

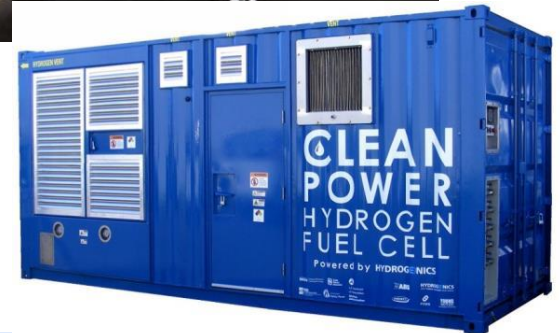
Hydrogen - a “no compromise” alternative to petroleum combustion



Cleaner technology and fuels scenario and 100% new sales ZEVs in 2050



Accelerate deployment of fuel cell applications for buses, trucks, and other sectors



Progress and Challenges

- ▣ Advancing on FCEV consumer purchases and deployment of H2 retail fueling infrastructure thanks to California's investments
- ▣ ~50 H2 Stations in 2017, 100 by ~2020
- ▣ Prepare for approximately 10,000 FCEVs in 2018 and 35,000 in 2021
- ▣ Address station capacity shortage and speed of station deployment
- ▣ Thinking beyond station #100 and role of private enterprise
- ▣ Continue California investments in FCEBs and other HD-FCEV deployments
- ▣ Promote H2 infrastructure for the HD sector through policy and other approaches
- ▣ Support H2 for transportation in other U.S. States
- ▣ Leverage auto industry's commitments for H2 infrastructure