



Curbing Transportation Pollution: Incentives, Regulations, & Infrastructure Investments

Simon Mui, Deputy Director, Clean Vehicles & Fuels Group, NRDC

Chuck Shulock, President, Shulock Consulting

April 9, 2021

Natural Resources Defense Council

Meeting California's Climate and Air Quality Goals

By 2030:
8 Million Zero Emission Vehicles (ZEVs)
1.7 Million Charging Ports



Supply of ZEVs

Regulatory requirements on vehicle manufacturers

Domestic ZEV and battery manufacturing programs



ZEV Infrastructure

Investments:
Public, private, and utility EV infrastructure programs

EV readiness codes



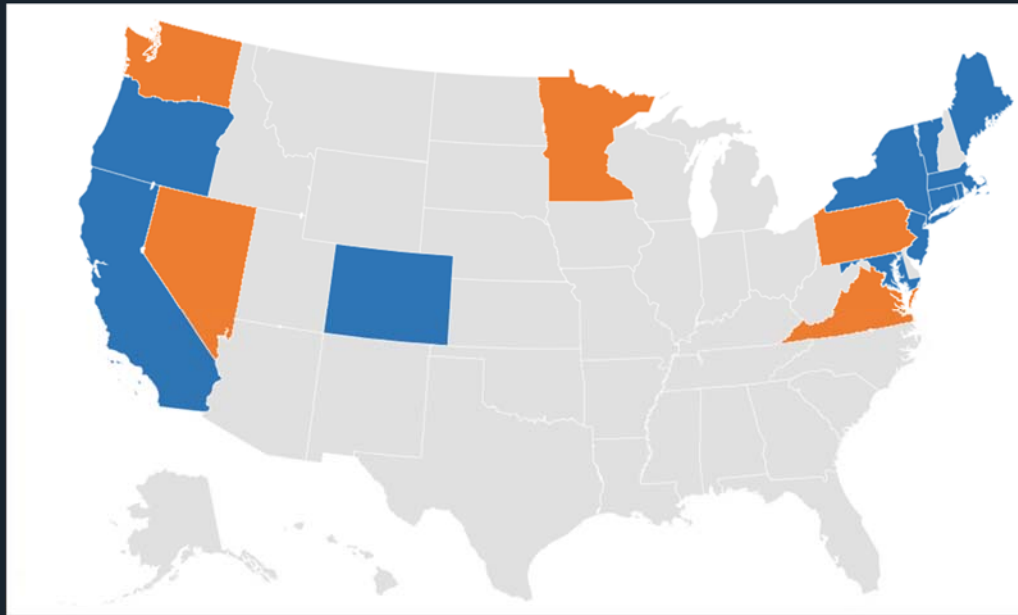
Consumer & Fleet Demand

Monetary and non-monetary incentive programs

Education & outreach

Clean car states

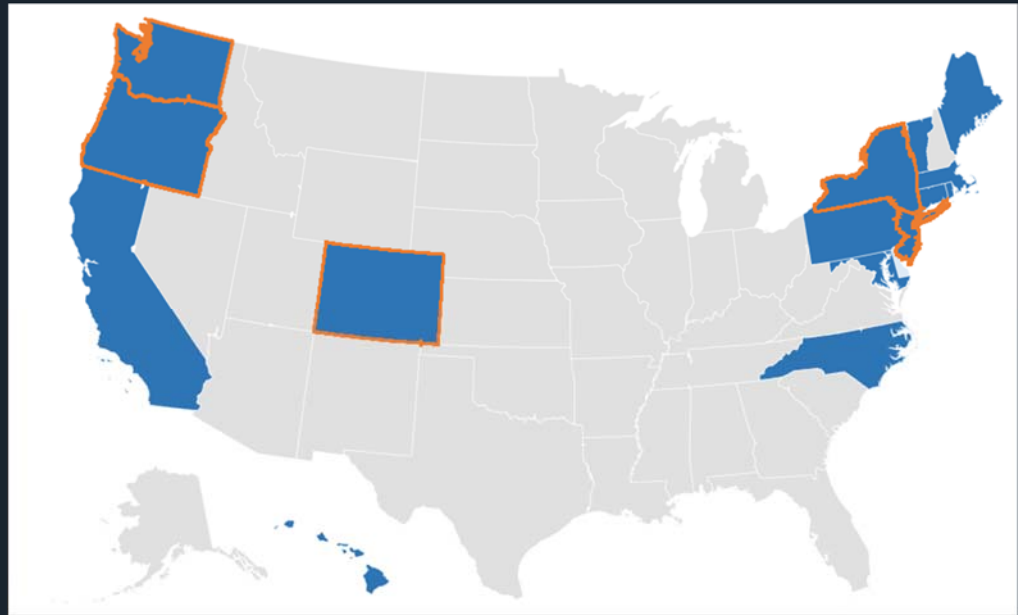
14 states have adopted CA clean car programs
5 additional states considering adopting LEV/ZEV



More than 40% of U.S. market

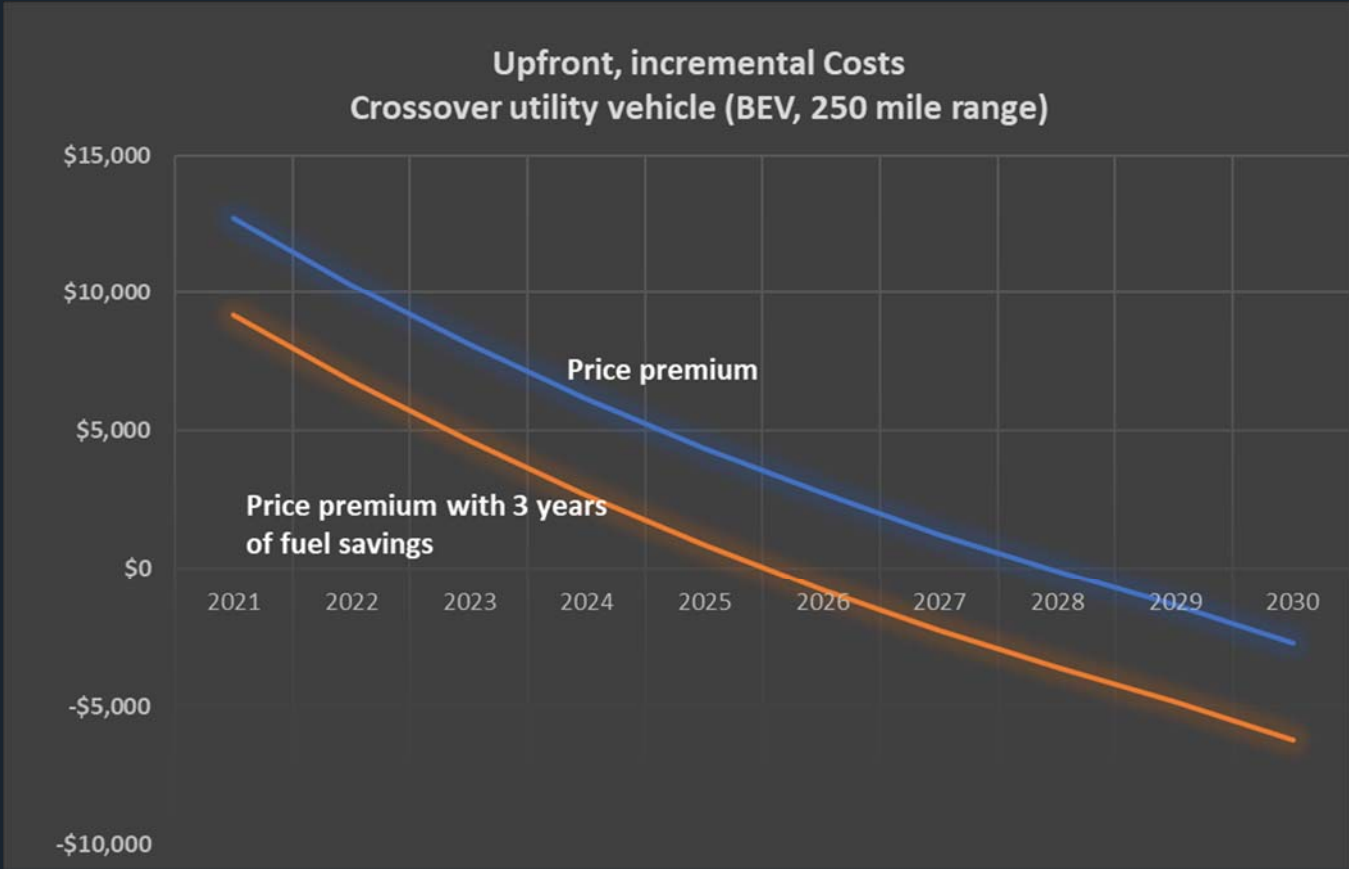
Clean truck states

14 states signed multi-state ZEV truck MOU with CA
5 of those states considering adopting ACT/Omnibus



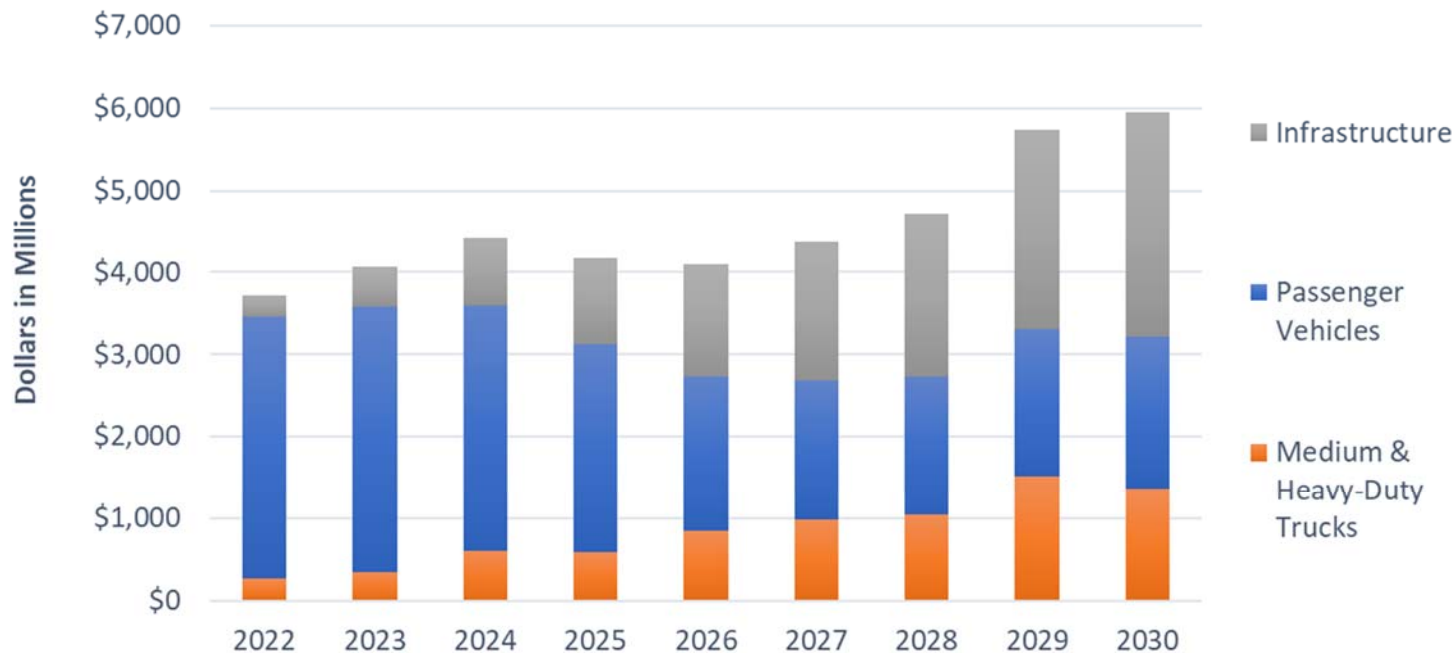
More than 40% of U.S. goods moved in these states (by value)

Upfront consumer & fleet investments costs

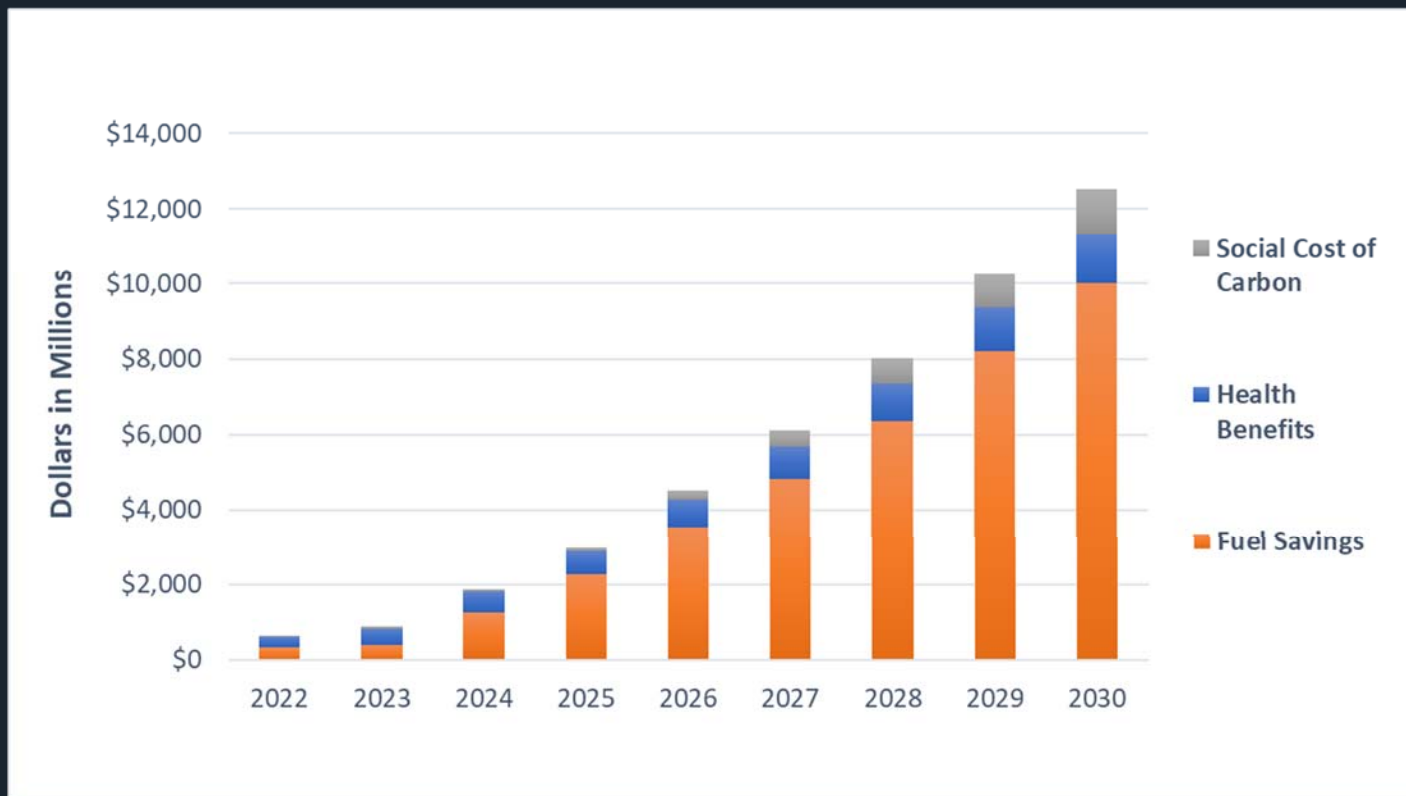


Source: ICCT

Transition costs to achieve state goals: 8 million ZEVs deployed by 2030



Benefits from transition: Improved public health, fuel savings, avoided climate pollution

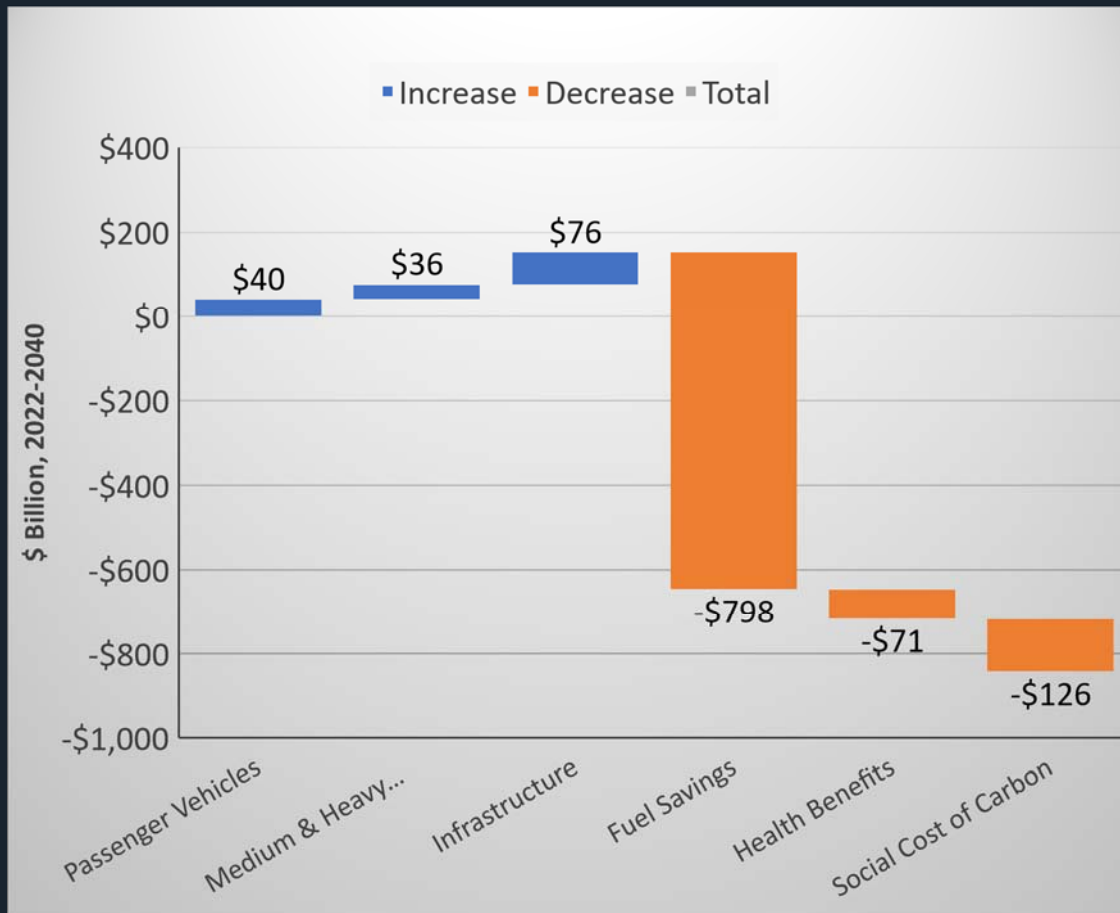


From 2022 to 2050, public health benefits add up to:

- Thousands of avoided premature deaths
- Hundreds of thousands of avoided respiratory symptoms (asthma exacerbations, bronchitis, etc.)
- Millions of avoided loss works and restricted activity days



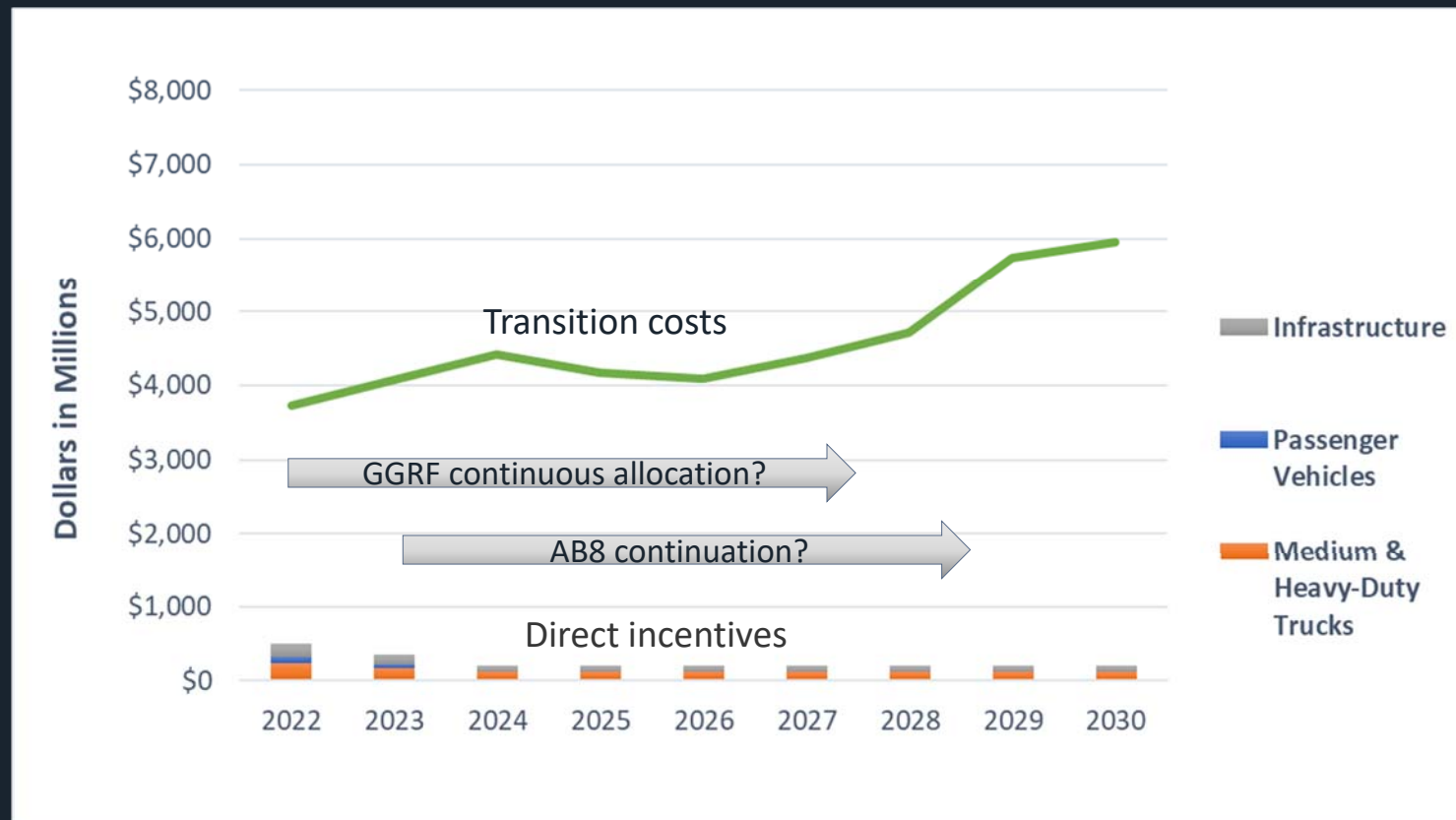
Benefits Greatly Outweigh Transition Costs Cumulative (2022-2050)



Over \$800 billion in net savings to California from transition to 100% ZEV sales

Nearly 7:1 Benefit to Cost Ratio

Current direct incentive programs vs. ZEV transition costs



Key Takeaways

- **Sustained funding** needed given the transition costs to reach ZEV goals
- **Long-term benefits of transition exceed costs** for California by nearly 7 to 1
- **Near-term versus long-term:** Need for vehicle incentives decline over time while continued capital investments in infrastructure remain
- **All three policy levers needed:** Regulations to ensure supply of ZEVs, Incentives to address consumer and fleet barriers, and infrastructure investments to enable access to refueling
- **Public Health, Equity, and Jobs:** California policymakers can help ensure the transition occurs in a manner that enhances equitable outcomes and promotes high-road jobs while addressing pollution



THANK YOU

Sources:

Modeling Services: Shulock Consulting; Meszler Engineering Services

California “META” and “VISION” [modeling tools](#)

ICF (2019), [Comparison of Medium- and Heavy-Duty Technologies in California](#)

ARB (2020) [Mobile Source Strategy](#)

CEC (2021) [Electric Vehicle Charging Infrastructure Assessment – AB 2127](#)

EPA (2018) [Technical Support Document, BenMAP](#)