

Policy Strategies for Cleaner Cars in the US and California

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promote eco-friendly cars (remote presentation)**

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To cover today

- Review of Biden administration's plans and potential US level policy making this year
- Review of California's rules, plans and potential impacts
- Focus is on zero-emission vehicles (ZEVs), fuel economy, biofuels

Joe Biden has been President for 5 days. What has he done so far?

Since Jan 20, Biden has, via executive order:

- Committed the US to rejoin the Paris climate agreement
- Reversed many Trump-era changes to land management and cancelled the Keystone XL pipeline
- Immediate Review of Agency Actions Taken Between January 20, 2017, and January 20, 2021, including the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks by July 2021.

From Biden and Transition Team Website

<https://buildbackbetter.gov/priorities/climate-change/>

- US Carbon neutrality by 2050
- Infrastructure: Create millions of good, union jobs rebuilding America's crumbling infrastructure
- Auto Industry: Create 1 million new jobs in the American auto industry, domestic auto supply chains, and auto infrastructure,
- Transit: Provide every American city with 100,000 or more residents with high-quality, zero-emissions public transportation options through flexible federal investments
- Power Sector: Move ambitiously to generate clean, American-made electricity to achieve a carbon pollution-free power sector by 2035.

Likely Strategies on Fuel Economy

- Unlikely to return to Obama plan; will use review and possibly a new rulemaking to extend to 2030, and push harder for electric vehicle uptake within fuel economy/CO₂ emission standards.
 - Though like Obama system, perhaps 4-5% improvement per year through 2025 vs only 1.5% under Trump
- Possible changes to incentives for ZEVs under regs
- California clean air waiver likely to be reinstated; California has a fuel economy schedule similar to previous EPA one and other states may adopt it.
 - Northeast “177” states likely to opt in, as may other states, though a new national standard may make this unnecessary

Biofuels

- Current Renewable Fuel Standard (RFS) reaches end of mandated blend levels in 2022.
 - EPA may gain discretion to set future targets, unclear how else they could reshape program
 - An “LCFS” program is possible but would probably require new legislation
- Producing next-generation biofuels may be a priority, by turning grass, crop residues, and other biomass into fuel (extent and funding unclear)
- Could promote higher octane fuel (ethanol) (or via GHG standards)

Zero emission vehicles

- No clear directions yet, except one: target is to deploy over 500,000 new public charging stations for electric vehicles by 2030 – though Congressional budget approval required (<https://joebiden.com/clean-energy/>)
- ZEV sales mandate? Unclear if it would need Congressional approval. Promoting state-level adoption of CA standards could be a strategy
 - Promotion of fuel cell vehicles and H2 infrastructure: priorities and actions are unclear, not much mention so far
 - Would be promoted, along with EVs, under ZEV rules and Hydrogen under an LCFS type structure

Turning to California...

CA has a very strong low-Carbon transportation policy system

- The state has set a carbon neutrality goal for 2045, including zero carbon electricity system

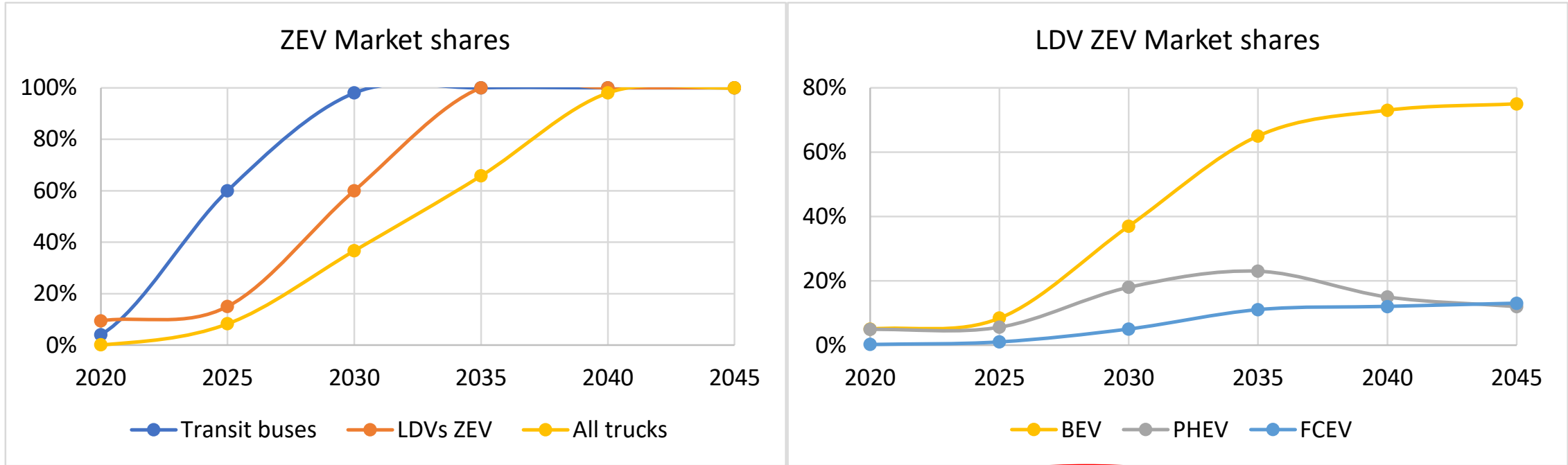
Transportation has specific targets:

- Statute: 15% ZEV market share (based on credits) by 2025 (50% for gov't agencies)
- Target: 5 million stock of zero-emission vehicle (ZEV) light-duty vehicles (LDVs) on the road by 2030 (out of about 40 million LDVs)
- Statute: Advanced Clean Truck (ACT) ZEV sales up to 75% by 2035
- Low-carbon fuel standard (LCFS), 20% reduction in average fuel carbon intensity by 2030 (vs 2010), consideration underway how to reach 100% by 2045
- And the latest: Executive Order: 100% LDV ZEV sales by 2035, trucks by 2045

A scenario for achieving these targets (and a BAU)

- Business as usual (BAU) – incorporates all current and planned policies, except one (I will explain)
- A fast ZEV uptake, very low-carbon scenario
 - Near 0 CO₂ emissions in 2045
 - Fast ZEV LDV and HDV penetration (2035 LDV and varying ACT ZEV sales targets)
 - Some reduction in passenger travel vs BAU

ZEV sales targets in low-carbon scenario

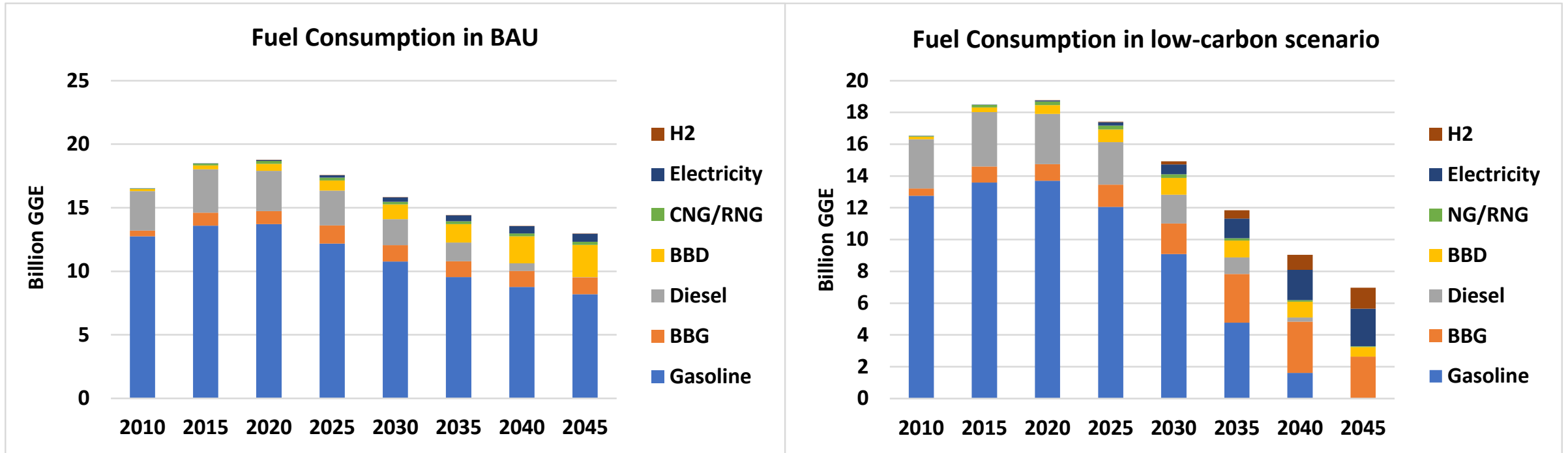


Trucks follow Advanced Clean Truck (ACT) regulation through 2035

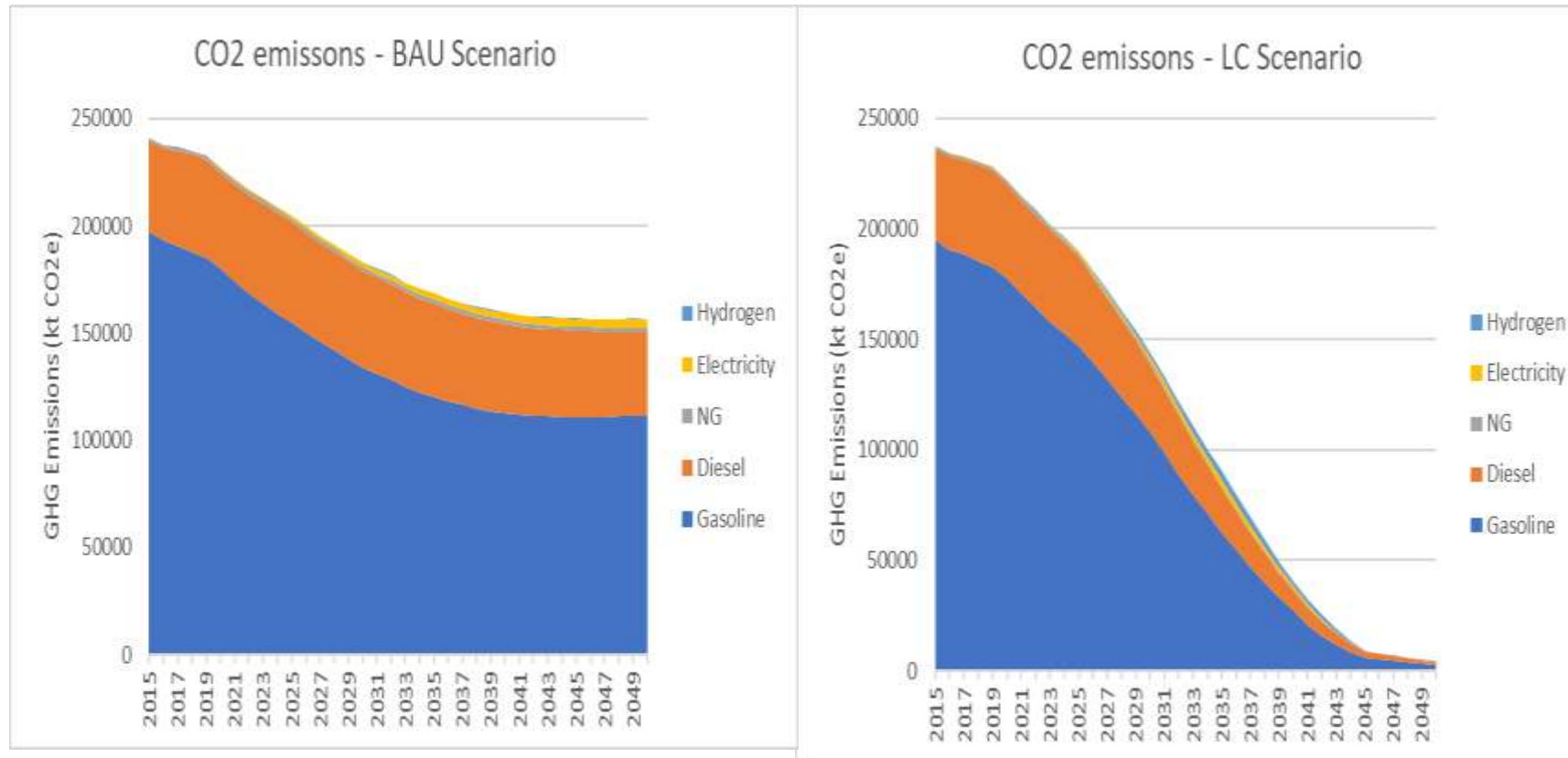
In 2040 ZEV Sales share = 98%

Year	Class 2b-3	Class 4-8	Tractor
2025	7%	11%	7%
2030	30%	50%	30%
2035	55%	75%	40%

Resulting Fuel Use by Scenario



Resulting Greenhouse Gas Emissions



LC Scenario includes: 100% renewable electricity and hydrogen by 2045
100% biofuels share of gasoline (ethanol) and diesel
by 2045

Conclusions

- California is way ahead of the US overall in clean fuels and vehicles policy, but the Biden administration aims to catch up
 - Likely to adopt aggressive fuel economy and ZEV vehicle policies to 2030 and beyond
 - Extent of requiring new legislation is unclear
 - Sect. 177 states and other states may help by adopting CA policies