



3 Revolutions Conference 2021

Electrification and Shared Mobility- Reducing
Greenhouse Gas Emissions Per Passenger

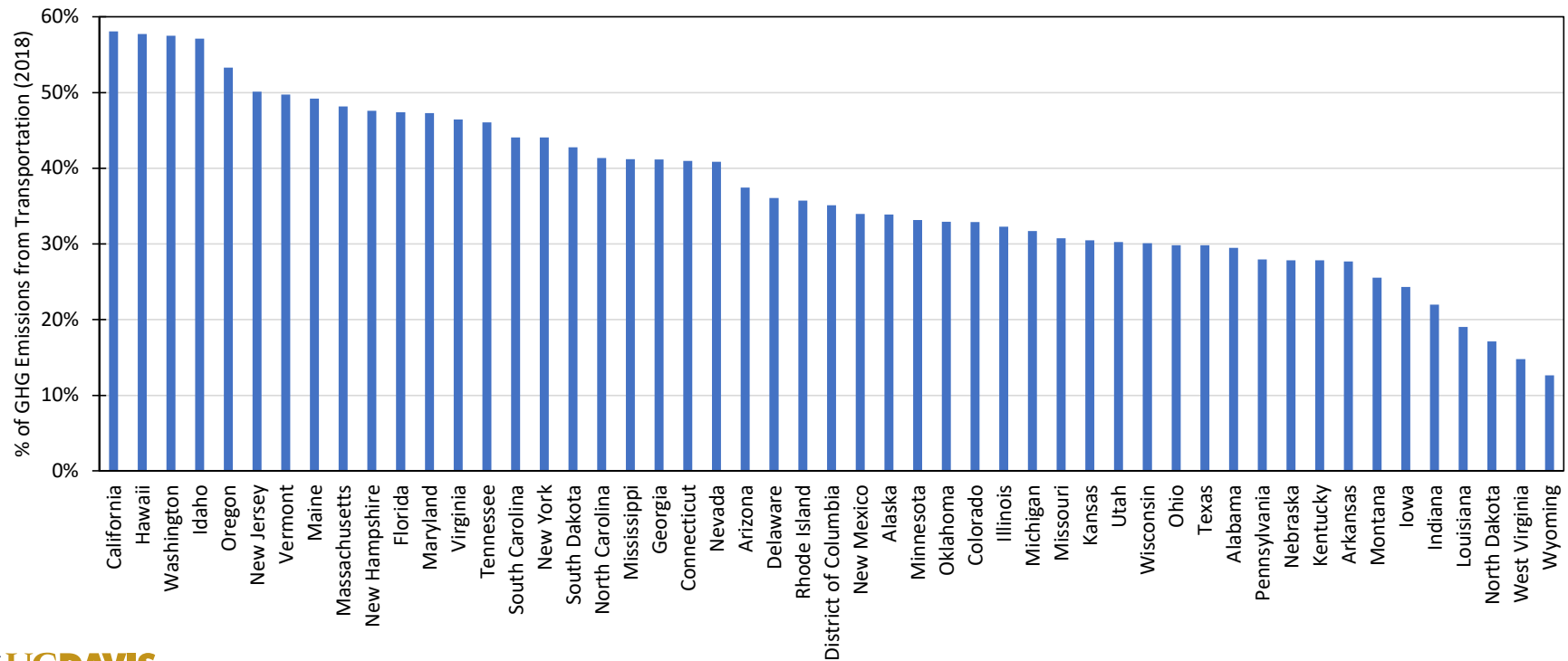
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Background

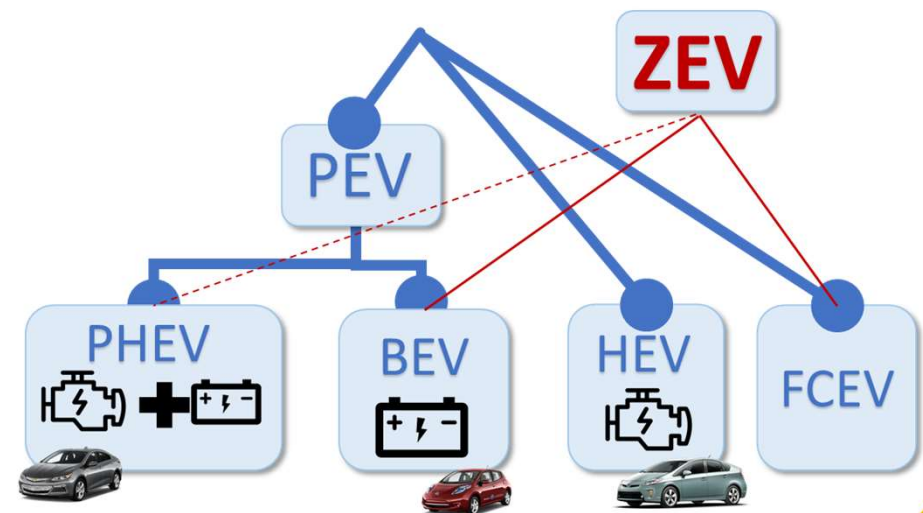
- Transportation is the largest source of GHGs in most states.



What are we talking about?

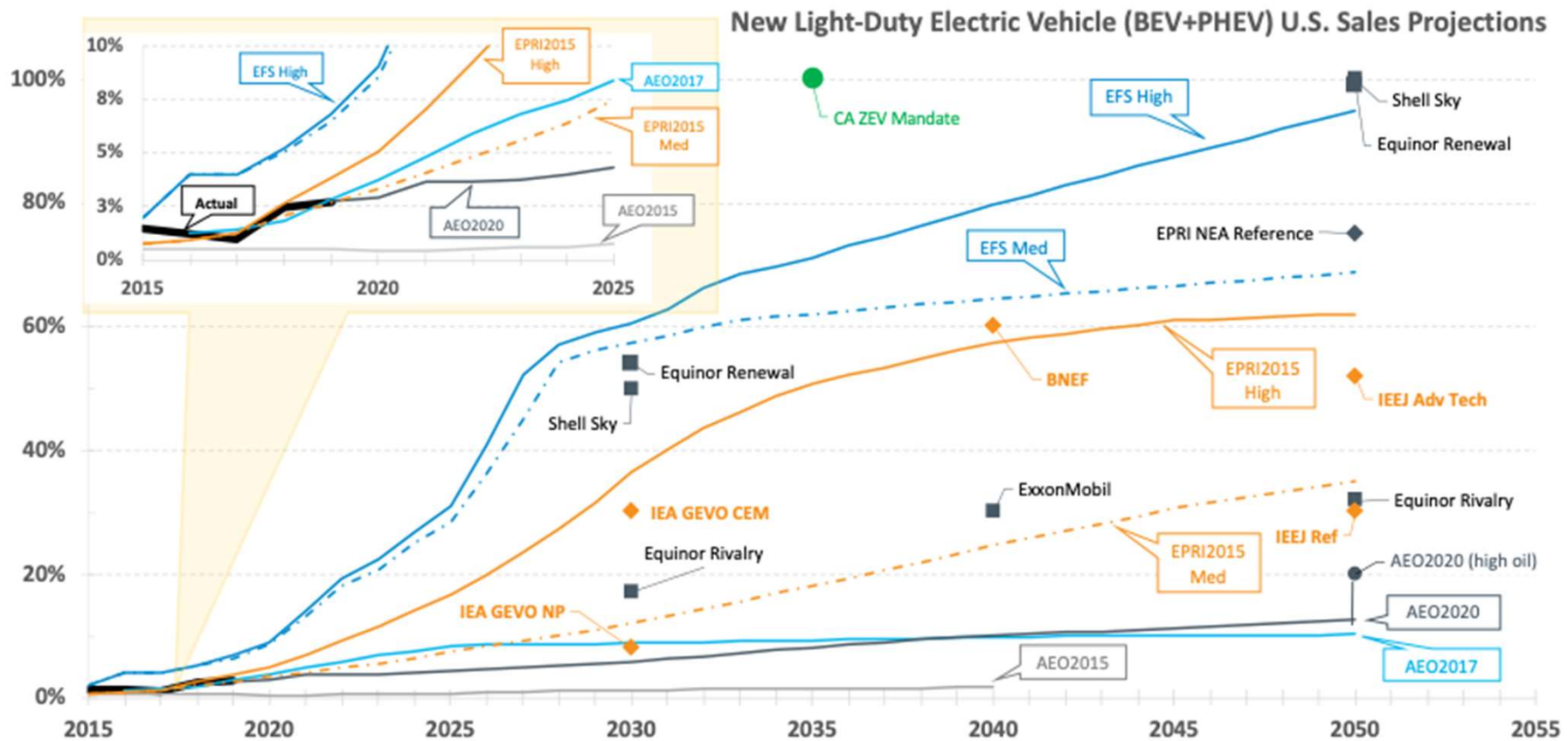
- **PEV** Plug-In Electric Vehicle (a car with a plug)
- **PHEV** Plug-In Hybrid Electric Vehicle (a plug and an engine)
- **BEV** Battery Electric Vehicle (A plug bigger battery no engine)
- **HEV** Hybrid Electric Vehicle (No plug not an electric car)
- **FCEV** Fuel Cell Electric Vehicle (Hydrogen instead of a plug)
- **ZEV** Zero Emission Vehicle (Californian PEVs+FCEVs)
- **NEV** New Energy Vehicle (China PEVs+FCEVs)

Electric Vehicles

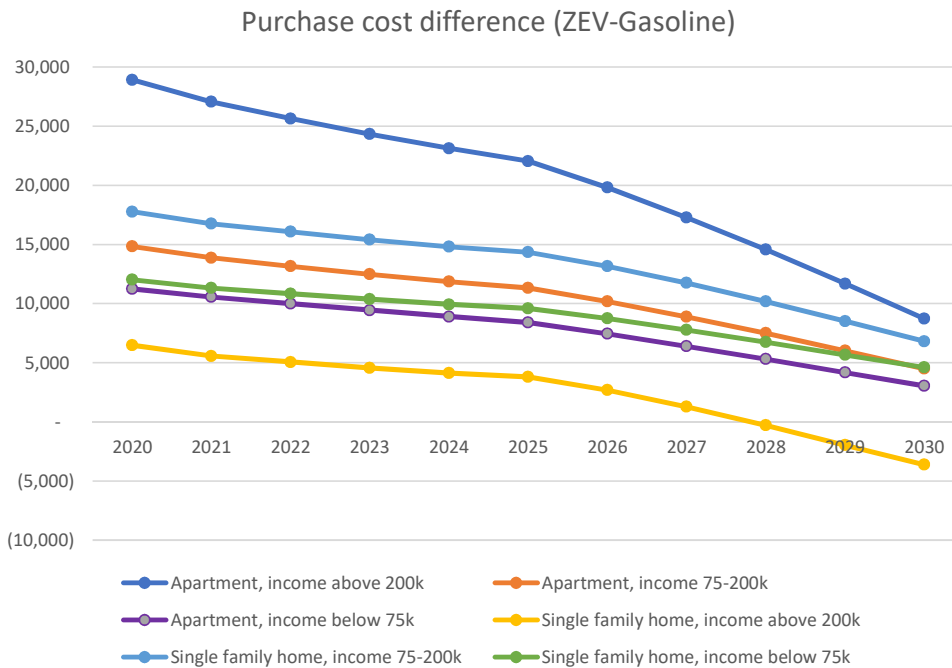


Future EV projections are uncertain

(forthcoming in Muratori et al, 2021)



Initial purchase cost of ZEVs & ICEVs



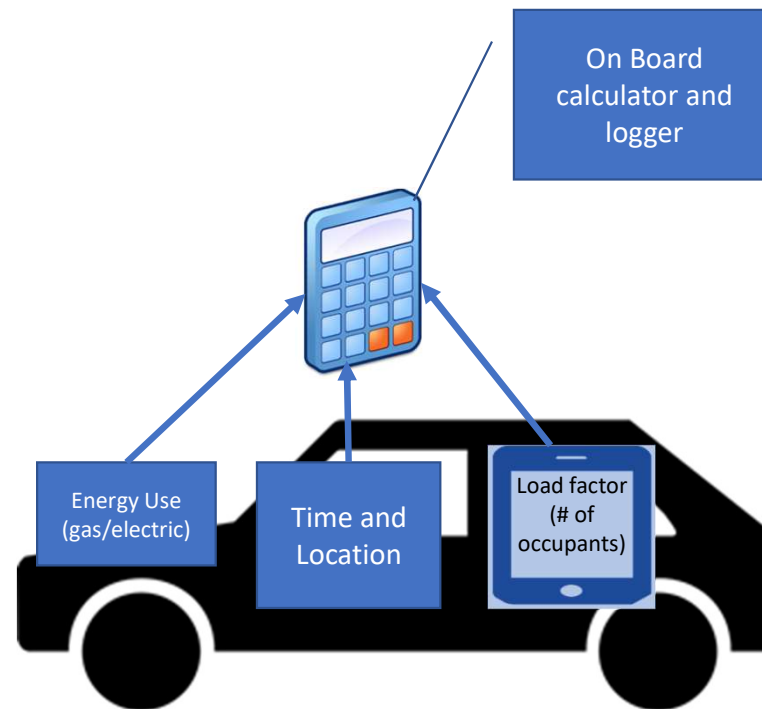
- Early adopters (e.g. high income, single family)=> allocation of mid- and short-range vehicles => lower cost difference
- Later years longer-range ZEVs required in one- and two vehicle households=> positive cost difference
- As cost of comparable ICEVs increase, initial cost difference falls

Note: Results are for the chosen vehicle allocation scenario

Reducing Greenhouse Gas Emissions Per Passenger: Performance base option

GHG per Mile

Passenger per mile



GHG per PMT a policy or two separate overarching goal?

Reduce GHG per vehicle mile travel

- eVMT share
- ZEV mandate
- CAFE regulations
- 100% ZEVs market share by 2035

Reduce GHG by reducing VMT

- PMT as a proxy for occupancy rates
 - Substitute SOV
- Ridehailing, transit, micromobility, TDM, land use policies

VMT reduction \neq Higher occupancy rates



Thank you

Gil Tal