

# Can California Reach its Climate Targets?

CALIFORNIA CLIMATE POLICY MODELING

WorkShop and Dialogue

**UCDAVIS**

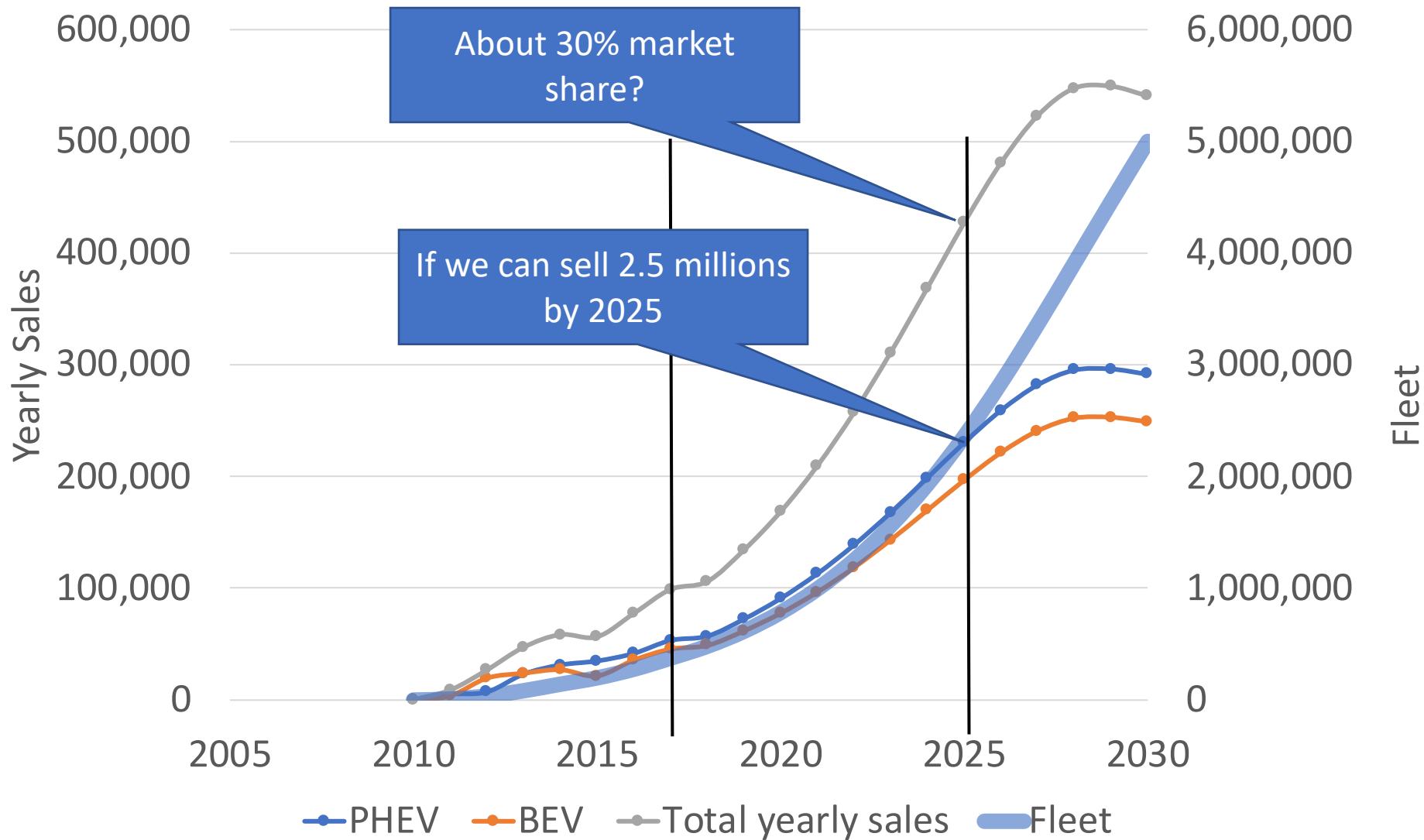
May 14<sup>th</sup>, 2018

## 5 million EVs by 2030: Market Perspectives

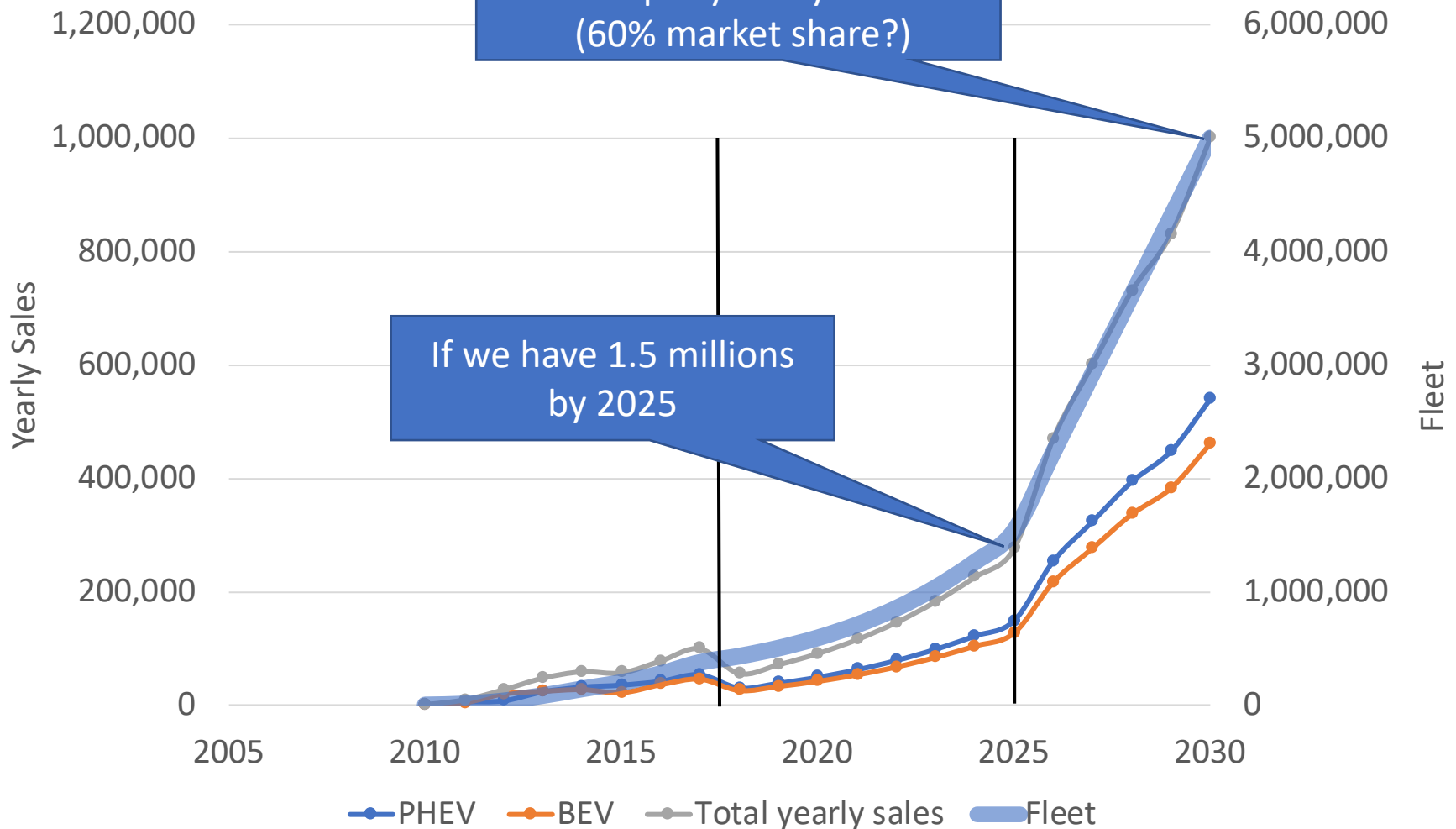
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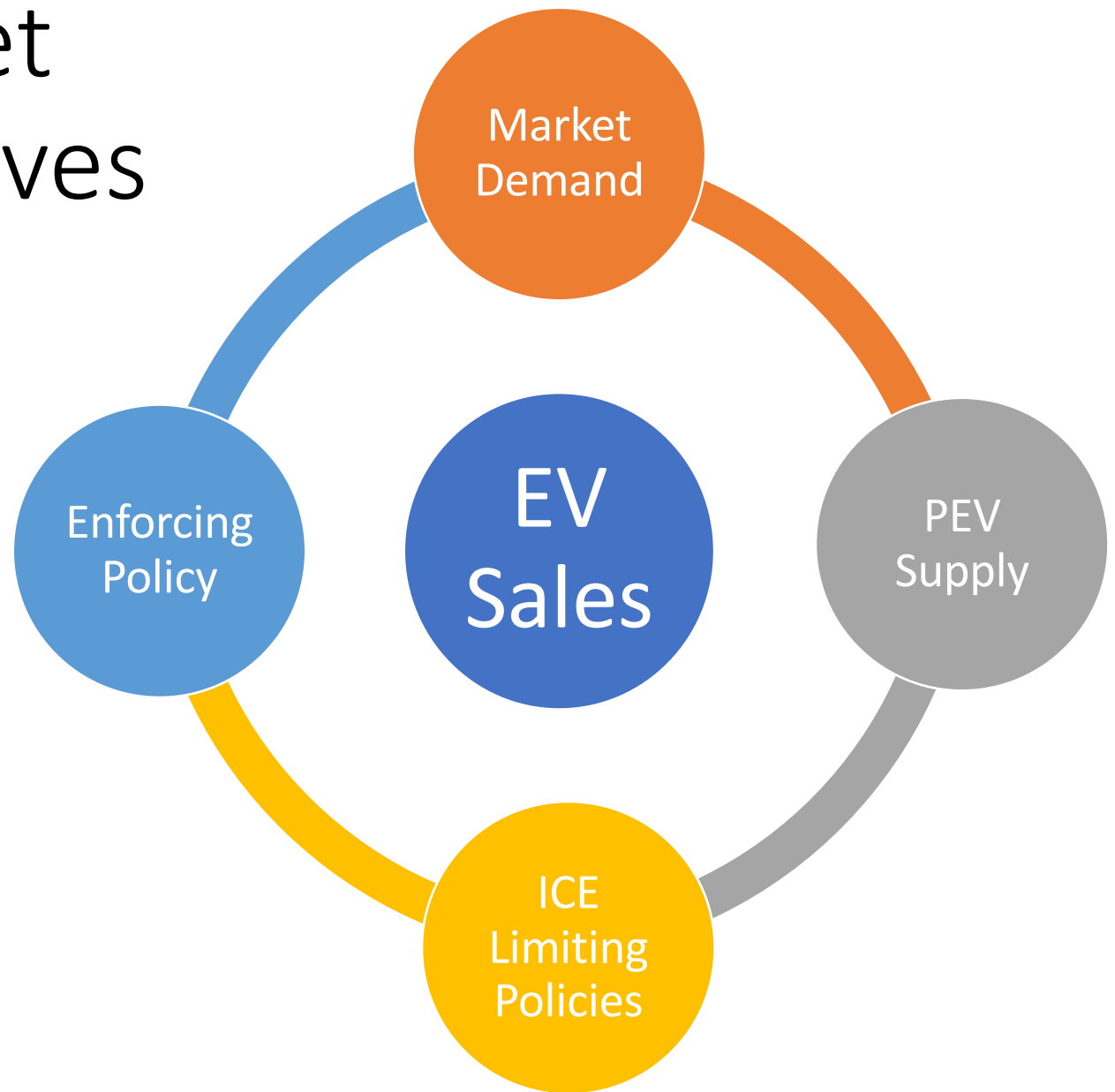
# California PEVs 2018-2030: Can We?



# What If we start with 1.5 millions by 2025?



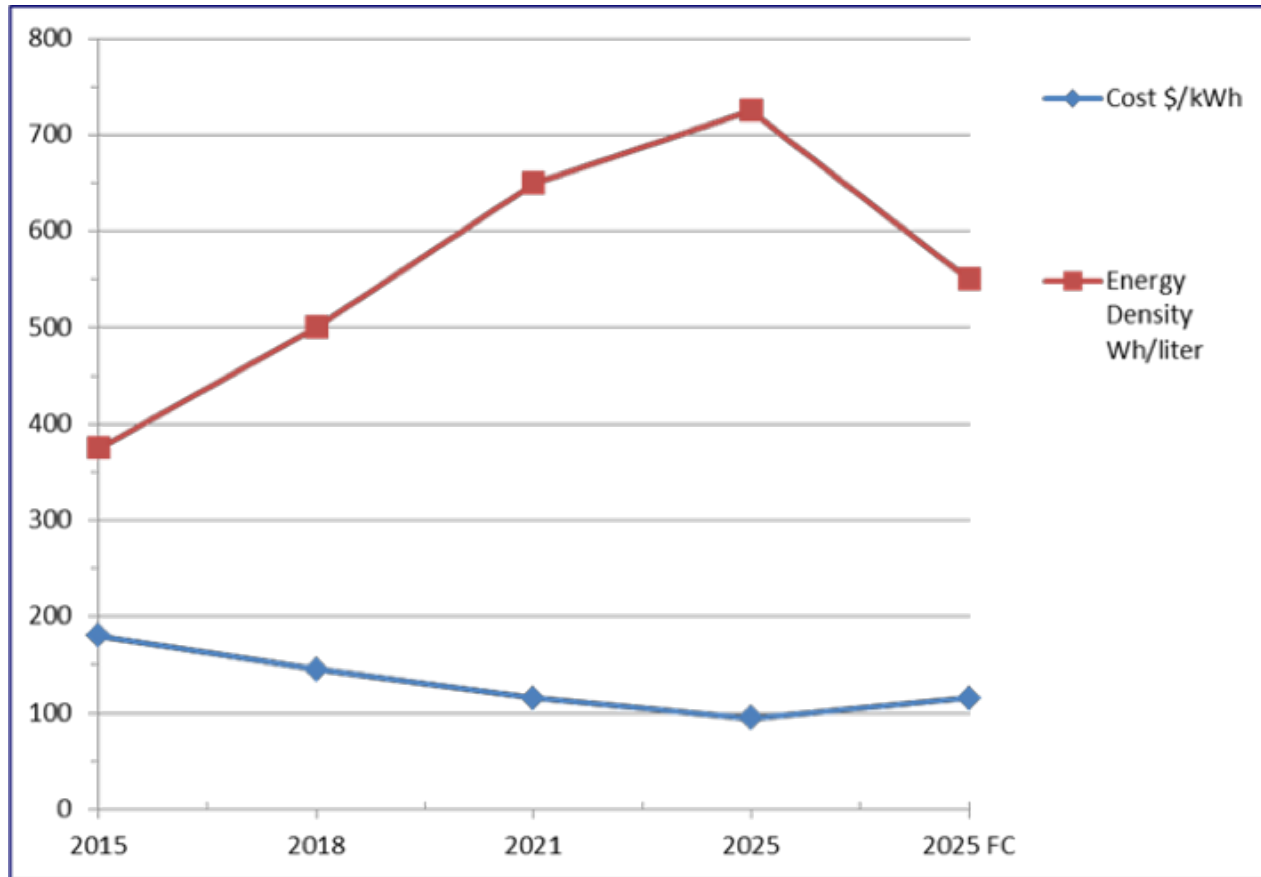
# EV Market Perspectives



# Key Challenges for OEMs

- **Driving Range Extension**  
From 80 to 300+ miles
- **Affordable Vehicle Price: price parity with ICEVs for all segments**  
Lower battery price \$100/kWh cell \$125 pack
- **Quick Charging**  
80% SOC in 20 min  
80% in 5 minutes
- **Lower cost PHEVs**  
New drivetrain designs

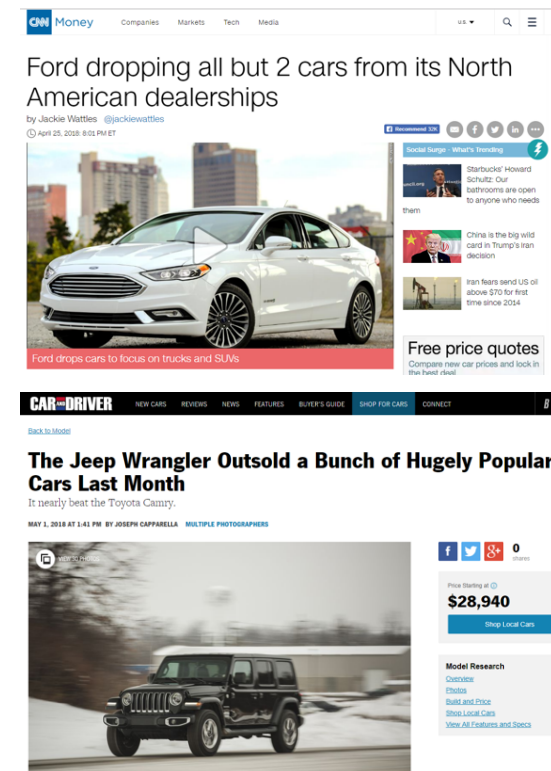
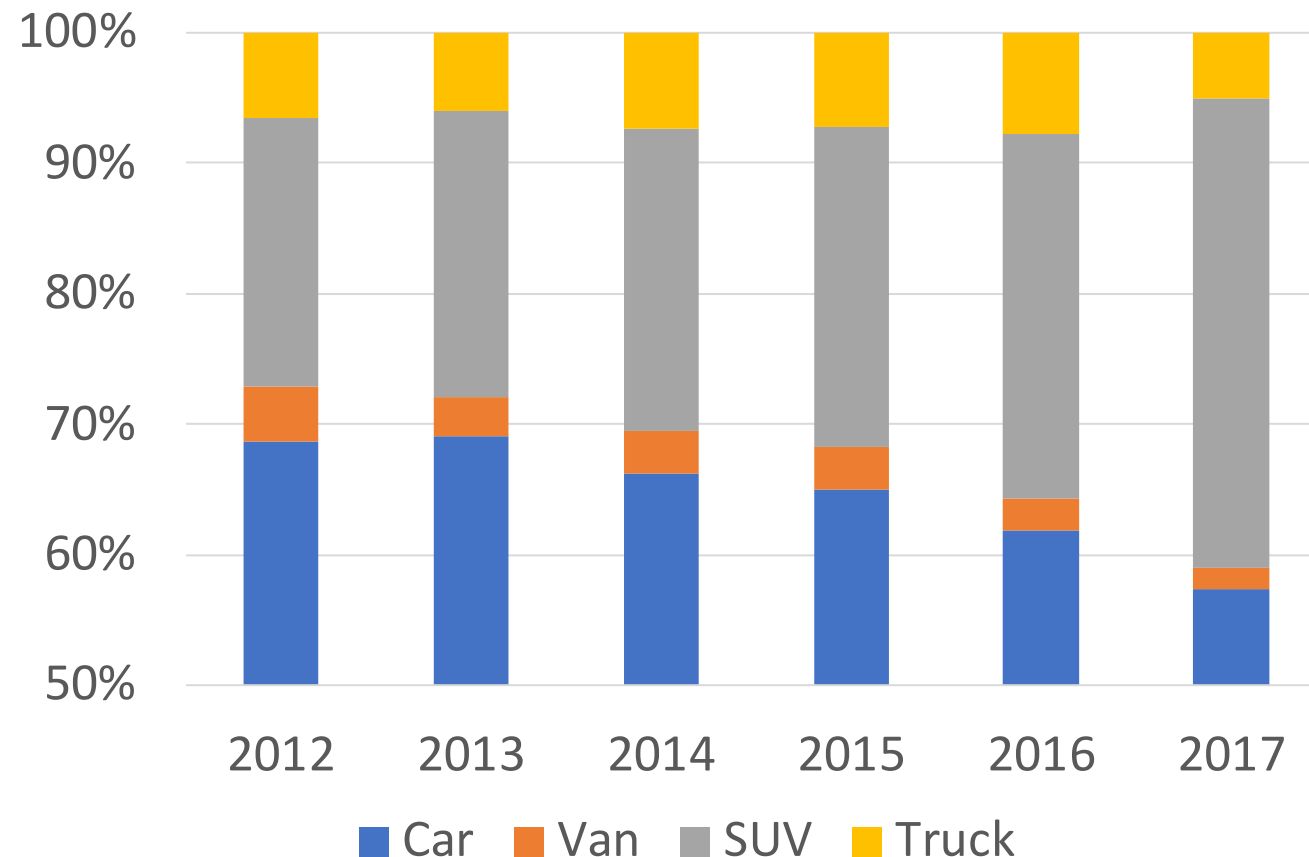
# Batteries and BEVs: the next 10 years



BEV Lithium Ion projected pouch cell parameters

# How large is the market shift away from cars?

California Fleet 2012-2017



# 54% of California households bought new vehicles between January 2010 and June 2017

## Households purchasing new vehicles

Three or more: 2.8%



Two: 13.6%

One: 37.5%

Purchased no new vehicles: 46%

## New vehicles purchased by households

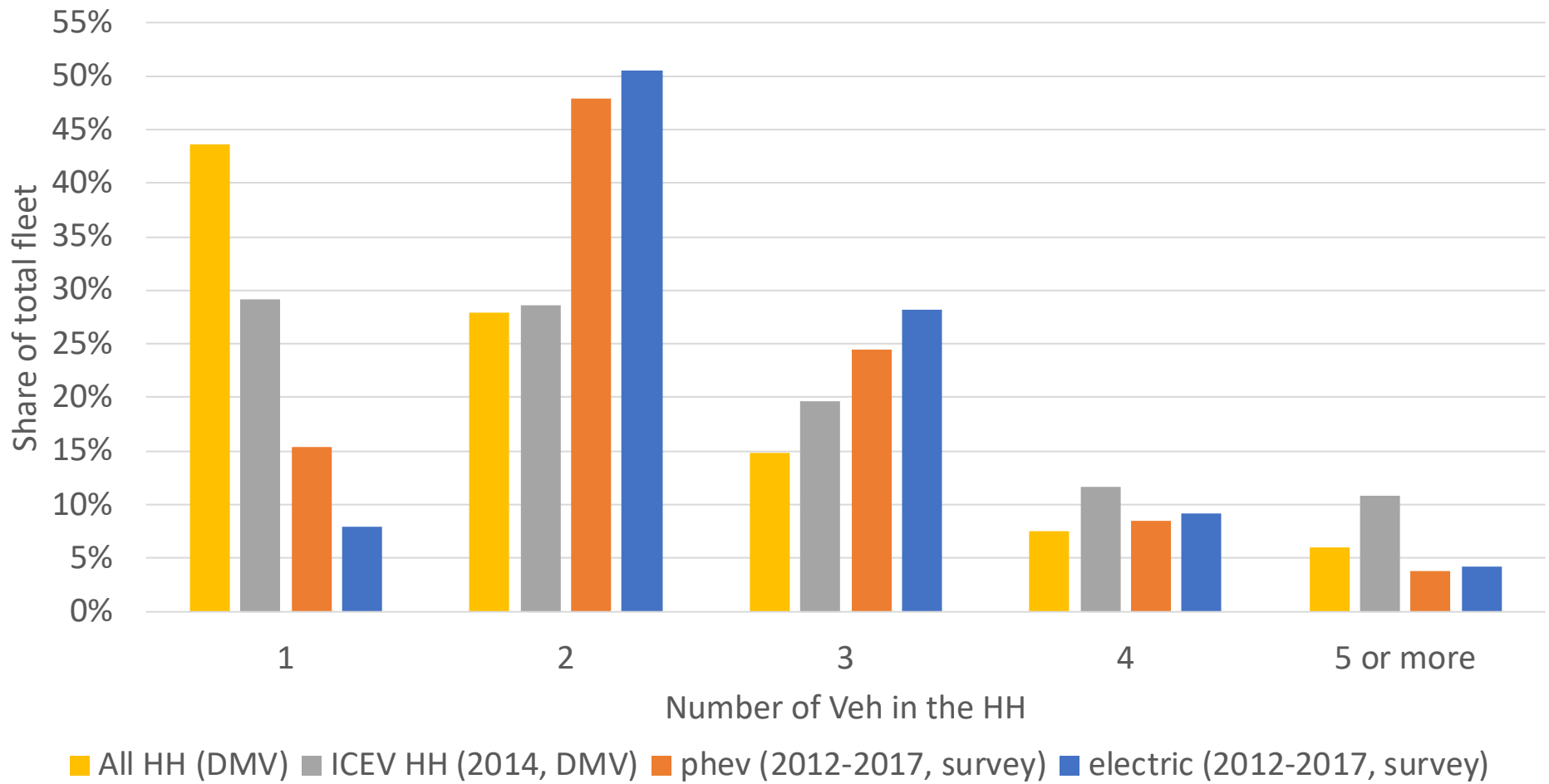
12% of all new vehicles

37%

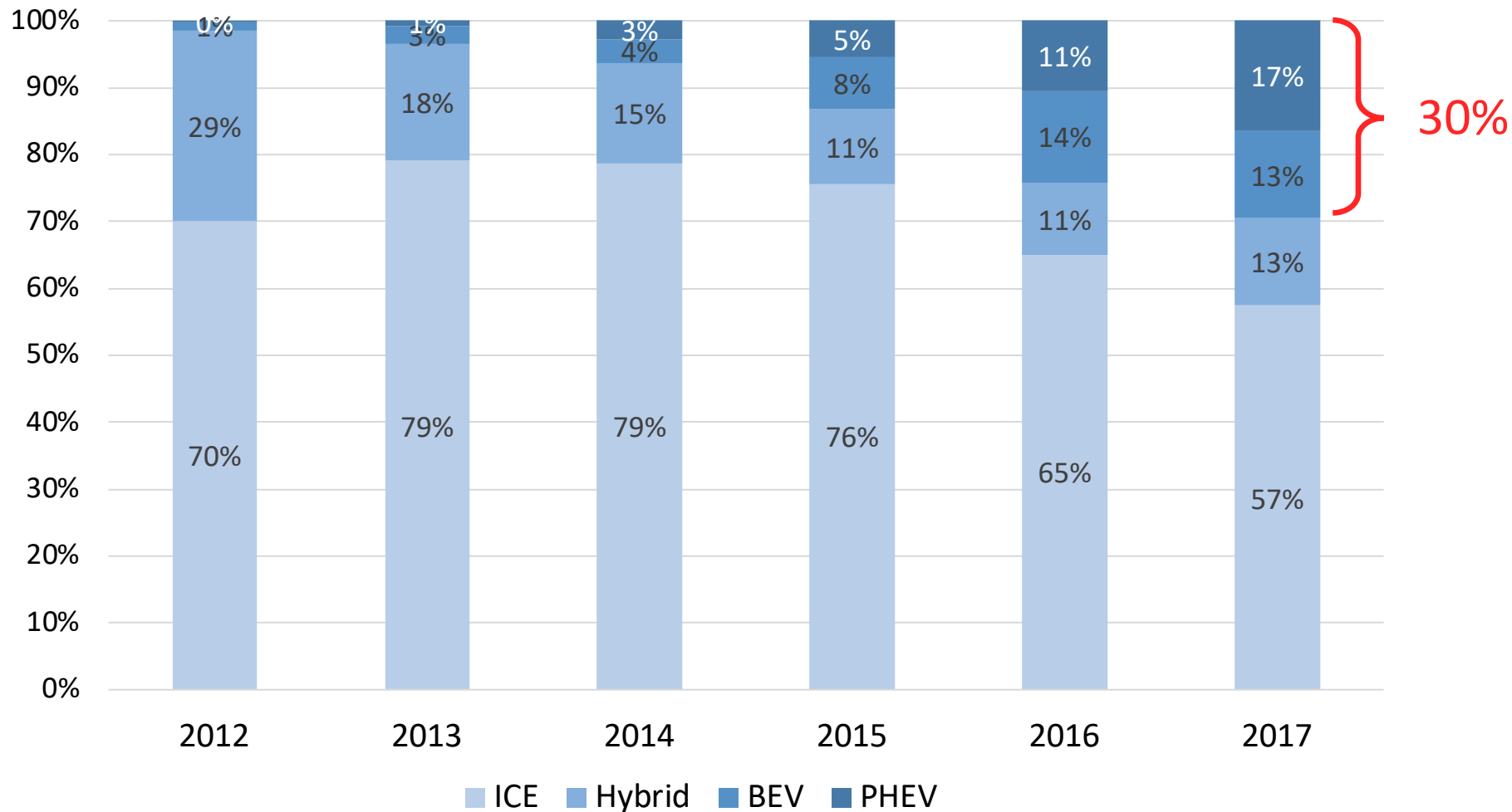
51%

0%



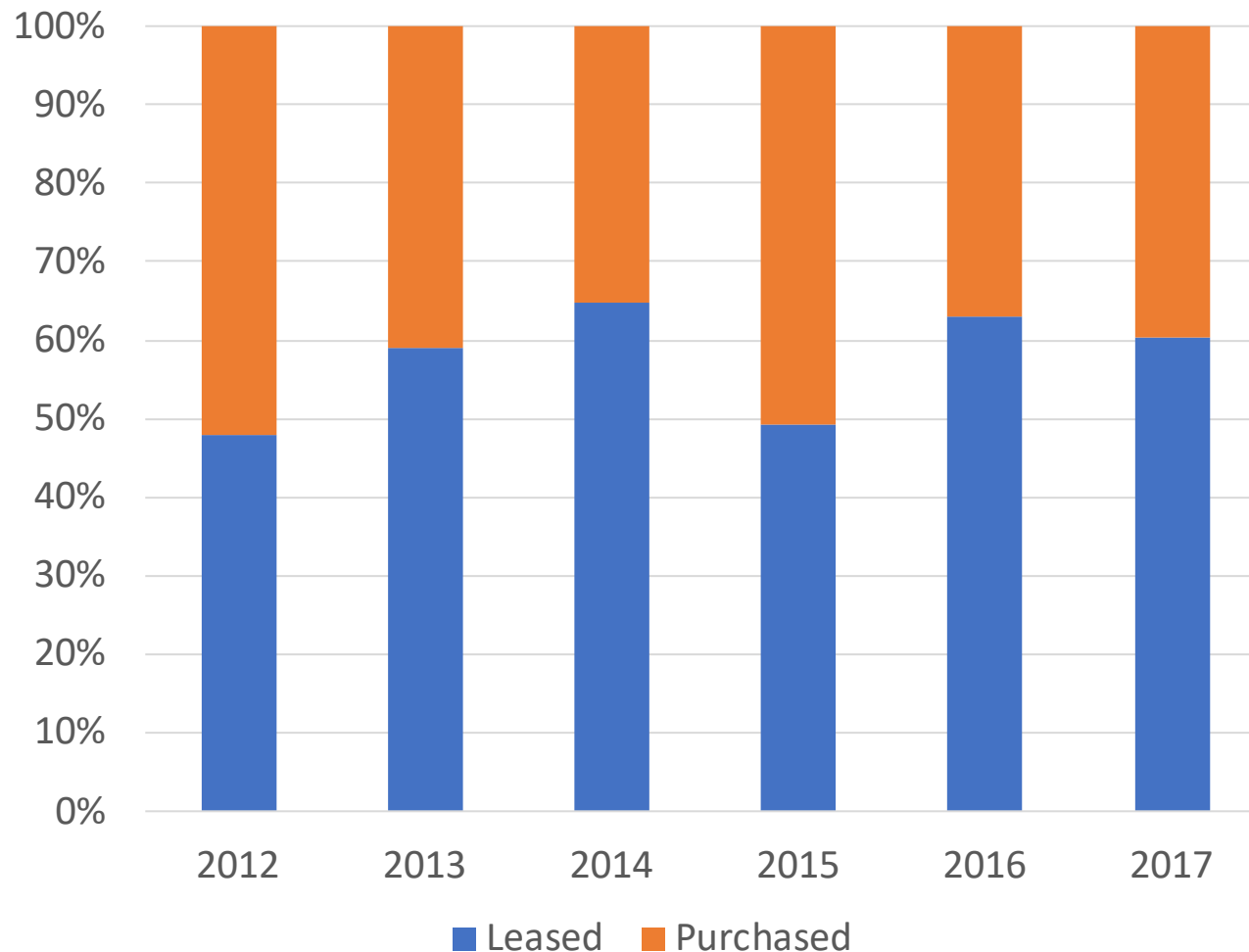


# Vehicle technology replaced by PEV



In 2017, 30% of the new PEV buyers were already buying their second car. A strong new PEV market will need a strong used PEV market.

# More than half of new PEVs are coming back to market after 2-3 years lease



# New PEV sales $\neq$ PEV adopters

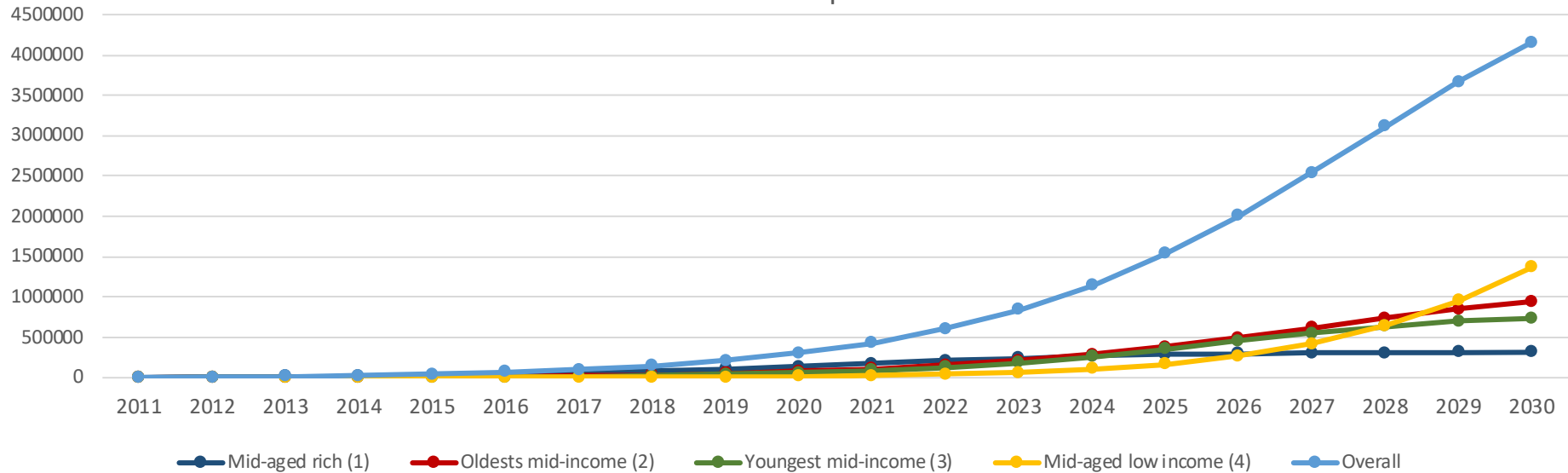
For example:

- First time new PEV buyers
- Second and multiple time new PEV buyers
- First time buyers who no longer have PEV
- First time used PEV buyers
- Second and multiple time used PEV buyers

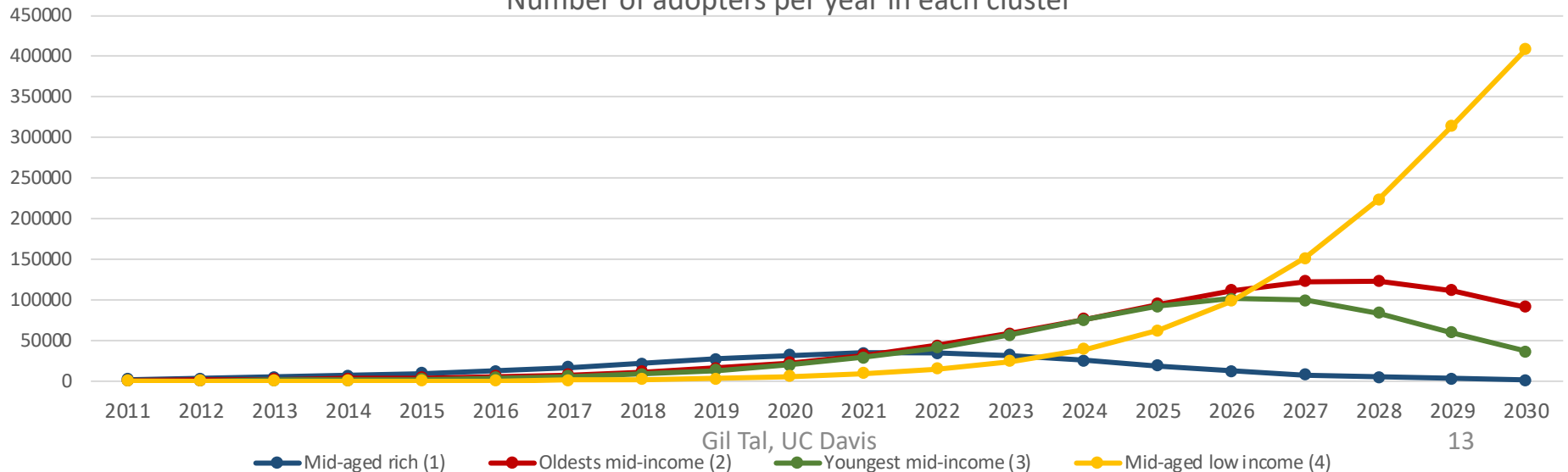
*As most car sales happened in the used market, healthy market growth will generate more than one adopter in the new or used market.*

# California PEVs 2018-2030: Yes we Can

Number of cumulative adopters in each cluster



Number of adopters per year in each cluster



# Next Steps:

- Model market share by vehicle segment (fewer cars)
- Model BEV and PHEV adoption by HH size, house type and vehicle segment
- Model the secondary market

# Open Questions:

- **Can we make it to 5 millions with current policies?**
- Supply
- Infrastructure to support BEVs
- New PEV Incentives
- Secondary market Incentives

# Thank you

Questions?

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