

The American EV Transition: Looking Ahead While Lagging Behind



John Paul Helveston
George Washington U.
May 08, 2025

China is posting some impressive EV numbers

PEV sales (BEV + PHEV): **1.37 M (2020) → 12.9 M (2024)**

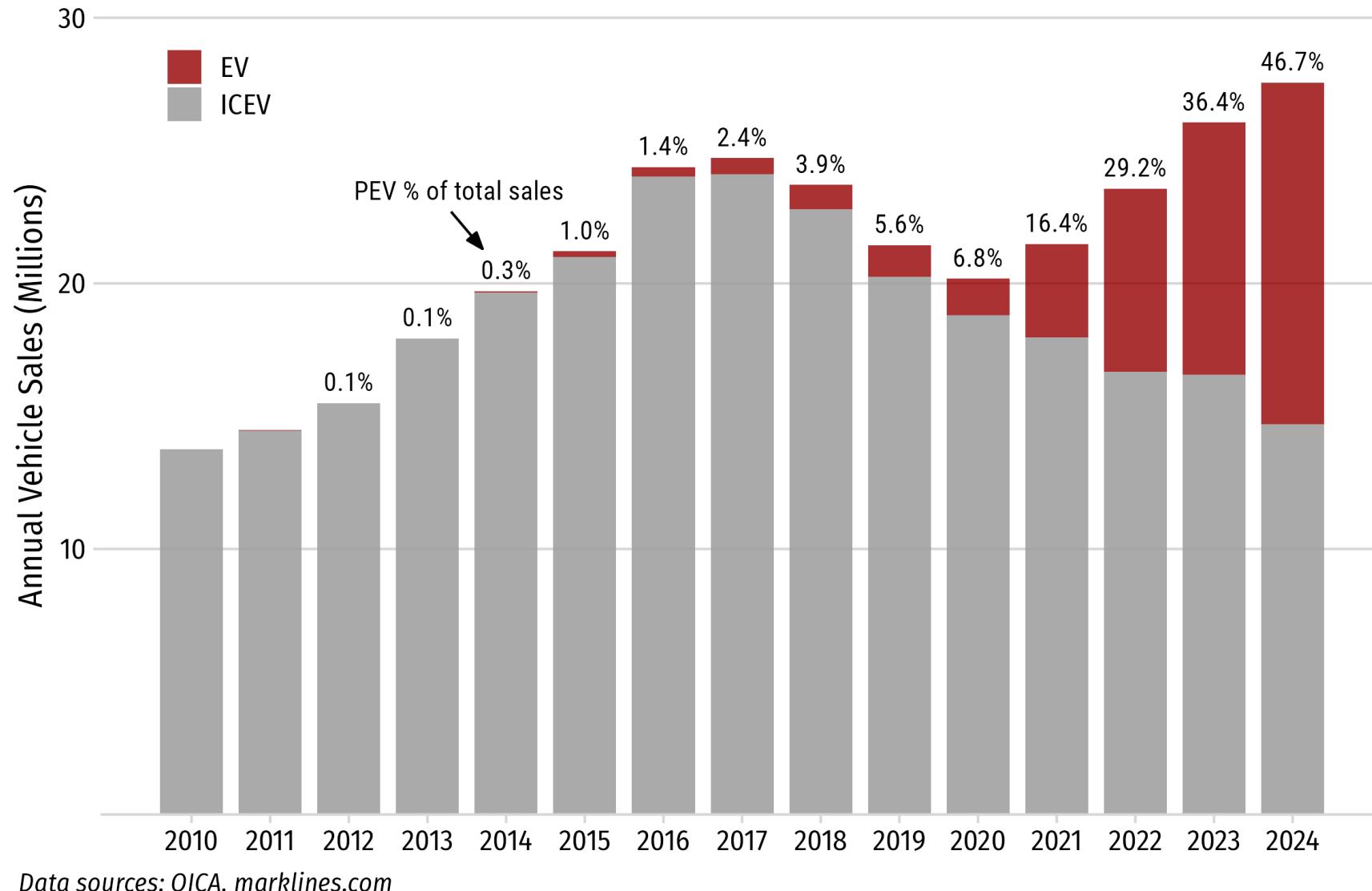
(46.7% of sales)

PEV exports (BEV + PHEV): **0.2 M (2020) → 1.28 M (2024)**

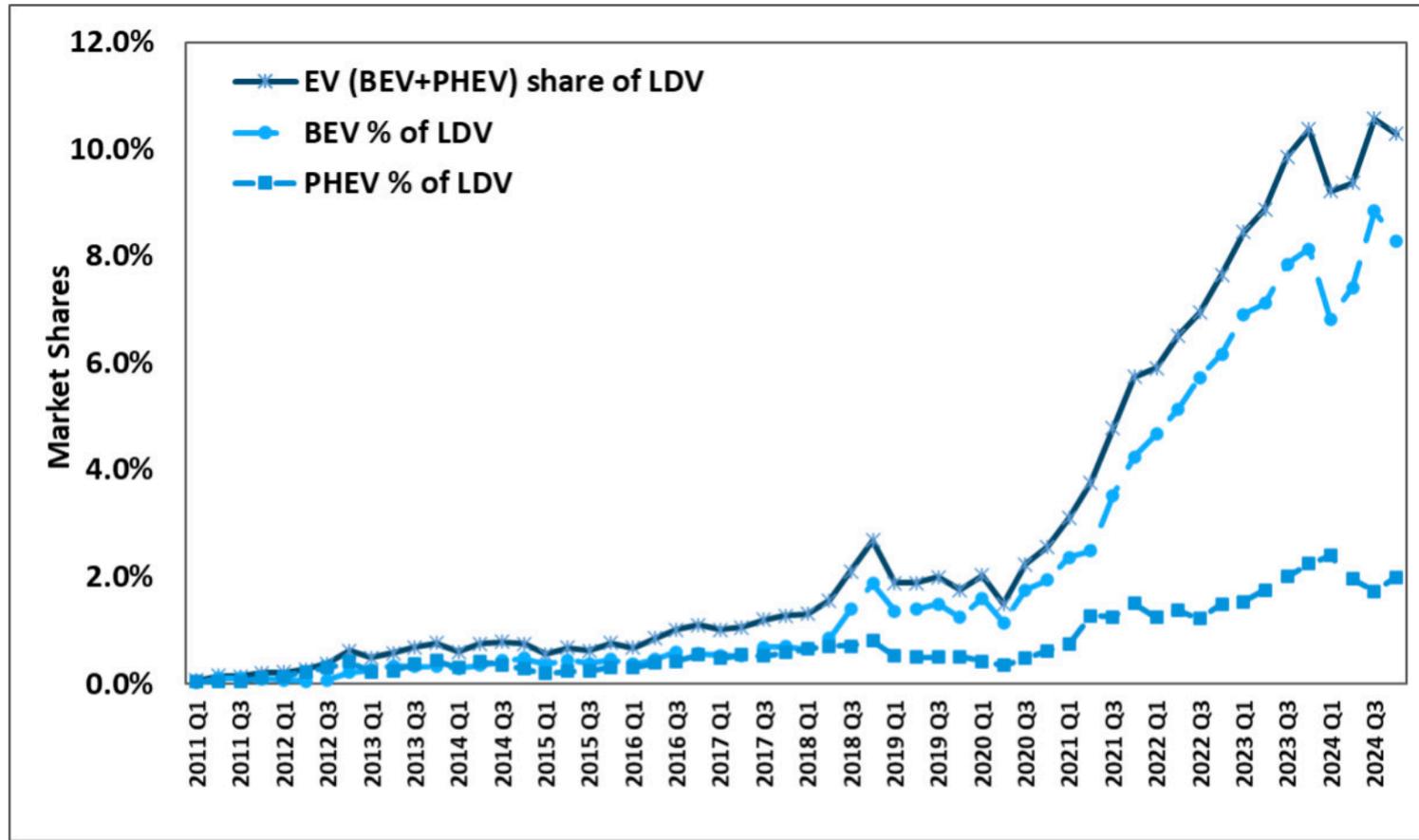
(25% of vehicle exports)

In China, PEV sales grow while ICEV sales slow

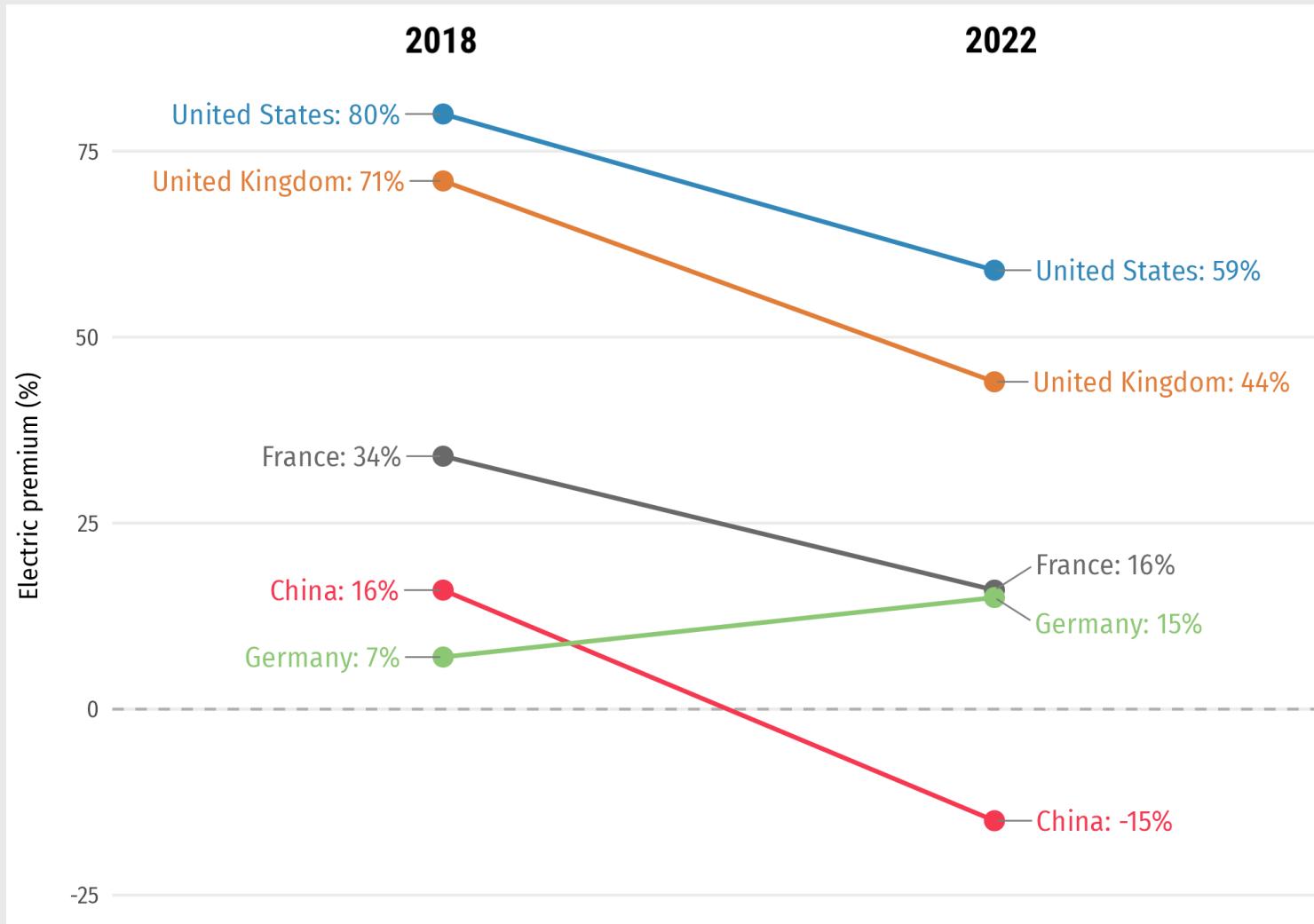
After peaking in 2017, internal combustion engine vehicle (ICEV) sales have declined for 7 straight years



EV sales in US reaching ~10% of sales



Source: Argonne National Lab, <https://www.anl.gov/ev-facts/model-sales>



The EV sector has an affordability problem (except in China)

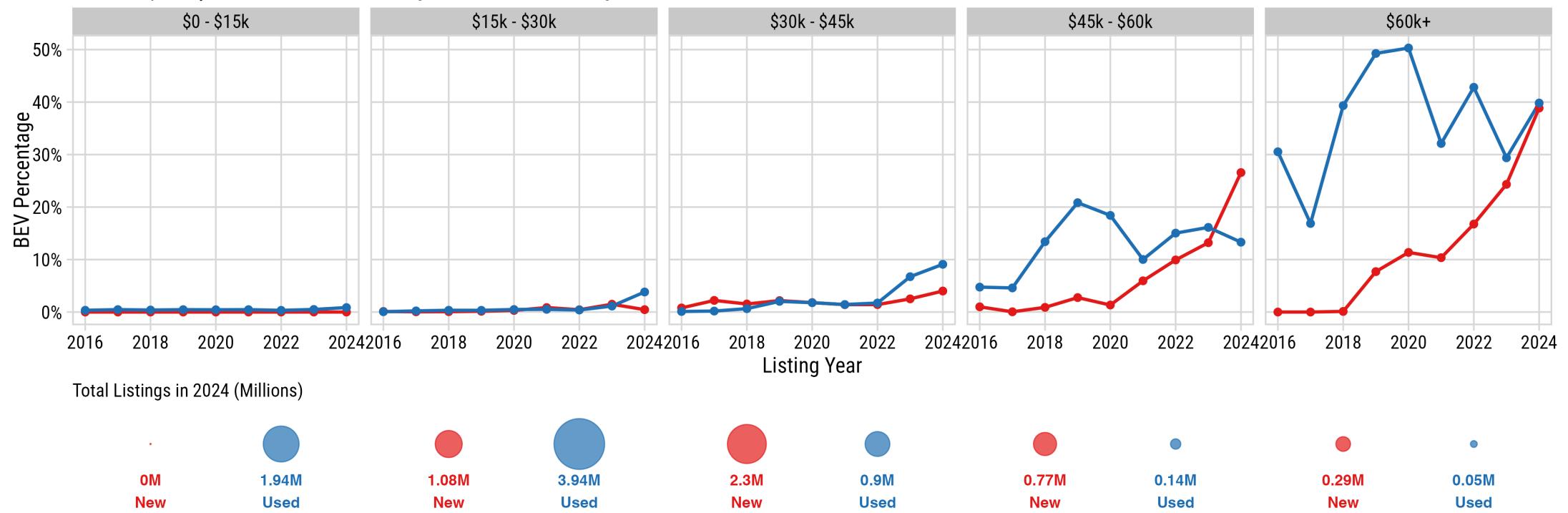
Source: <https://www.iea.org/reports/global-ev-outlook-2024/executive-summary>

BEVs Concentrated in High-Price Segments in US

In 2024, only 2.2% of new and 3.6% of used listings under \$45,000 were BEVs

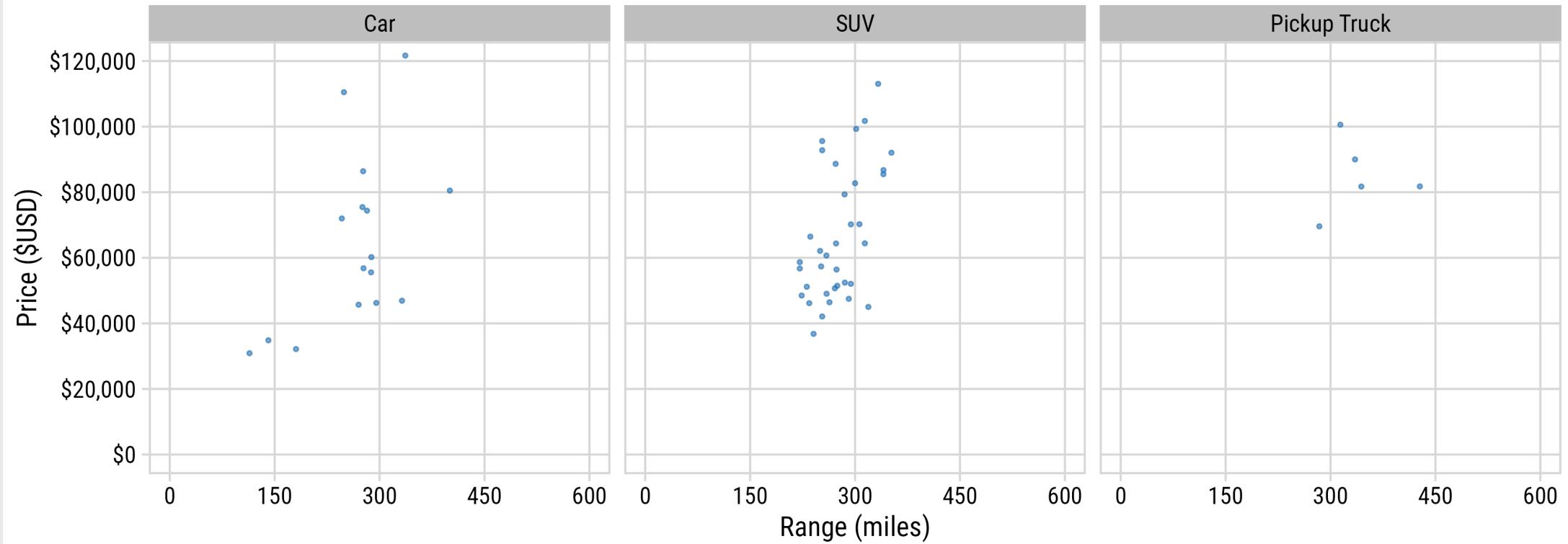
BEV Affordability Gap: BEVs Concentrated in High-Price Segments

In 2024, BEVs comprised just 2.2% of new vehicle listings and 3.6% of used listings under \$45,000



China offers more affordable BEVs across all range categories

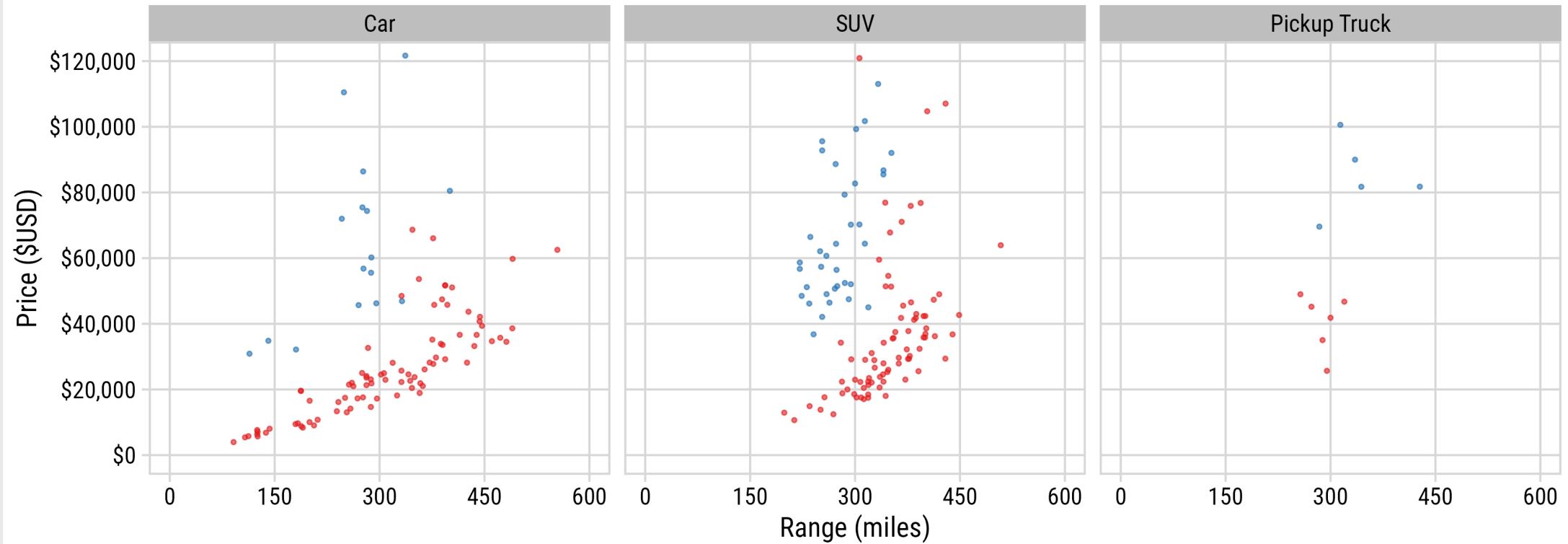
Price vs. Range for all Model Year 2024 BEVs in **China** and the **USA**



Data scraped from autocango.com (China) and carsheet.io (USA)

China offers more affordable BEVs across all range categories

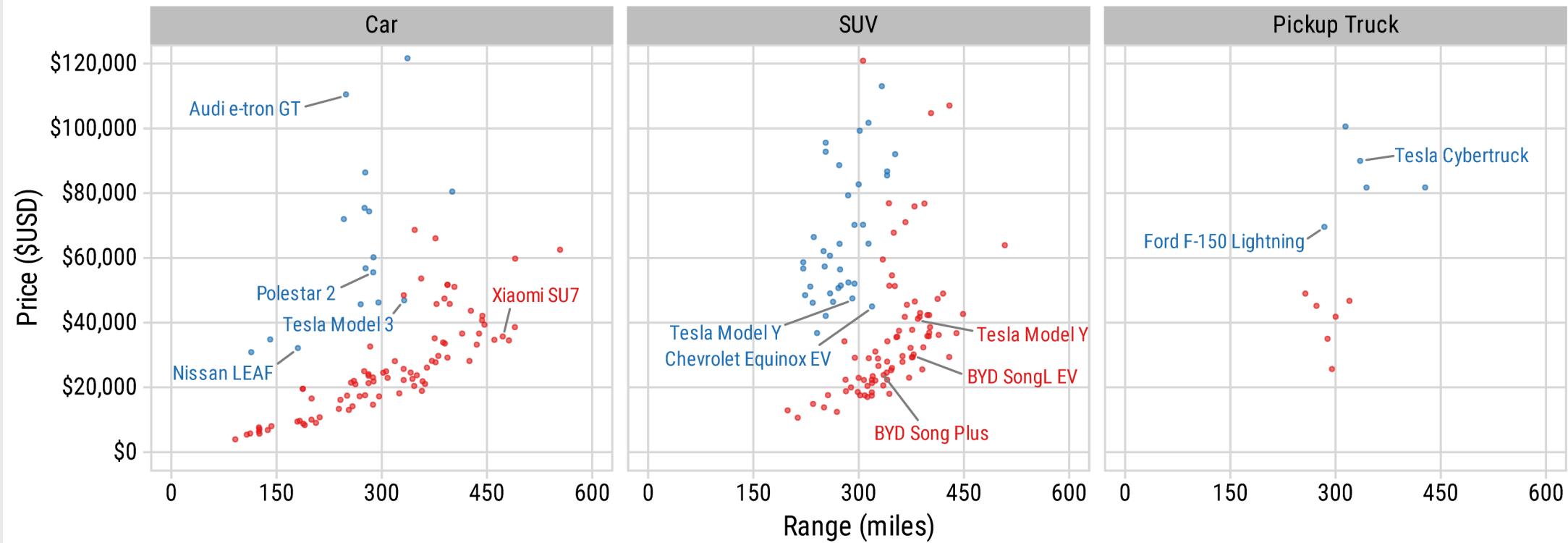
Price vs. Range for all Model Year 2024 BEVs in **China** and the **USA**



Data scraped from autocango.com (China) and carsheet.io (USA)

China offers more affordable BEVs across all range categories

Price vs. Range for all Model Year 2024 BEVs in **China** and the **USA**



Data scraped from autocango.com (China) and carsheet.io (USA)

The biggest competitor
to an American EV
is not a Chinese EV...

...it's a gas car

Top 4 Selling Vehicles in **China**

Xiaomi SU7

\$30,171 - \$41,909



BYD Song

\$24,721 - \$38,555



Geely Xingyuan

\$ 9,615 - \$13,667



Tesla Model Y

\$36,822 - \$43,809



Top 4 Selling Vehicles in **China**

Xiaomi SU7

\$30,171 - \$41,909



BYD Song

\$24,721 - \$38,555



Geely Xingyuan

\$ 9,615 - \$13,667



Tesla Model Y

\$36,822 - \$43,809



Top 4 Selling Vehicles in **USA**

Toyota RAV4

\$29,250 - \$38,955



Honda CRV

\$30,100 - \$41,100



Ford F-150

\$44,095 - \$79,005



Chevrolet Silverado

\$42,700 - \$70,000



Strategic Implications

Global Market Share Erosion: U.S. autos will not be competitive abroad without affordable EVs

Trade Imbalance: U.S. could go from net vehicle *exporter* to *importer* (U.S. exported \$15B in vehicles and parts to Canada in 2024 

Employment Impacts: U.S. auto employs 10.1 million Americans, \$730B in annual paychecks

Strategic Response Options

North American Integration: Create sufficient scale with Canada and Mexico partnerships 

Sustained Policy Support: Maintain IRA incentives during transition

Battery Manufacturing Focus: Prioritize domestic production
(Platform for commercializing next-gen US technologies)

Strategic Chinese Partnerships: Form tech relationships for market access, e.g. licensing agreements and FDI

Thanks!

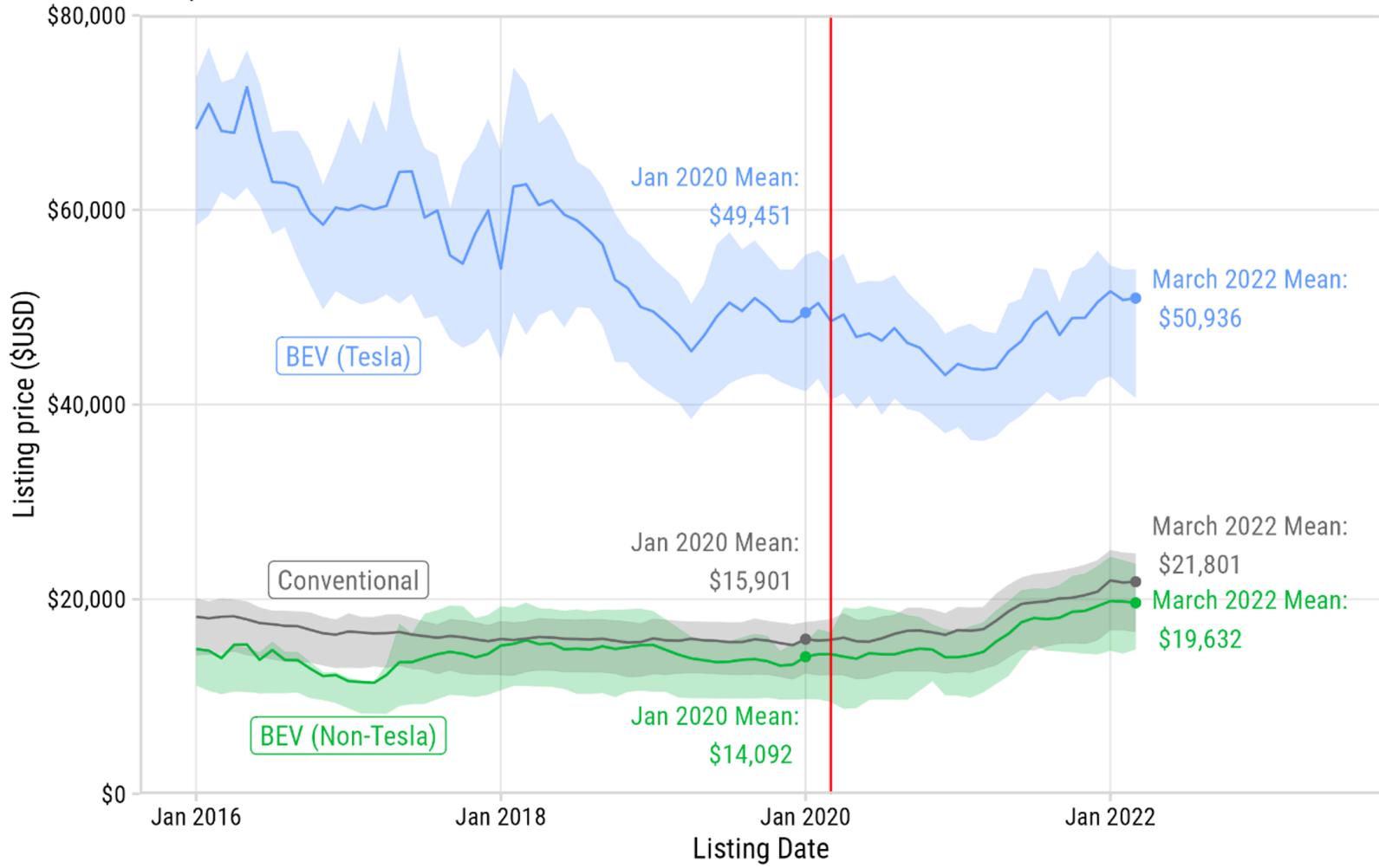
<https://jhelvy.github.io/2025-ucsd-us-china>

@jhelvy.bsky.social 
@jhelvy 
jhelvy.com 
jph@gwu.edu 

Extra Slides

Used market listing prices are substantially higher post-COVID19

Prices inflation-adjust to constant 2019 \$USD

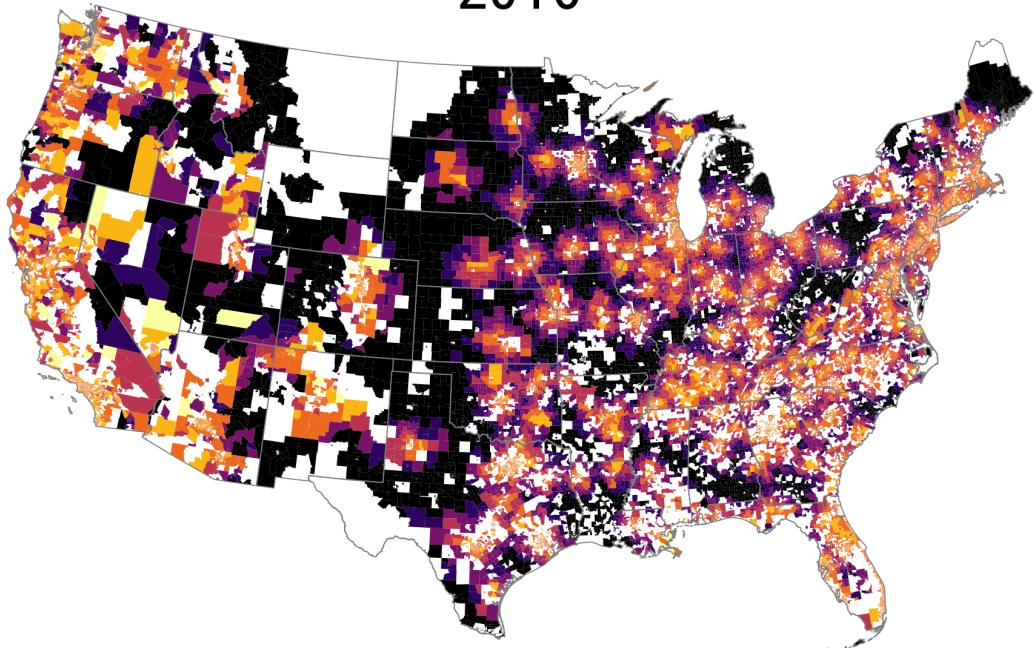


Used market is more affordable, but post-COVID prices are up in all markets, not just EVs

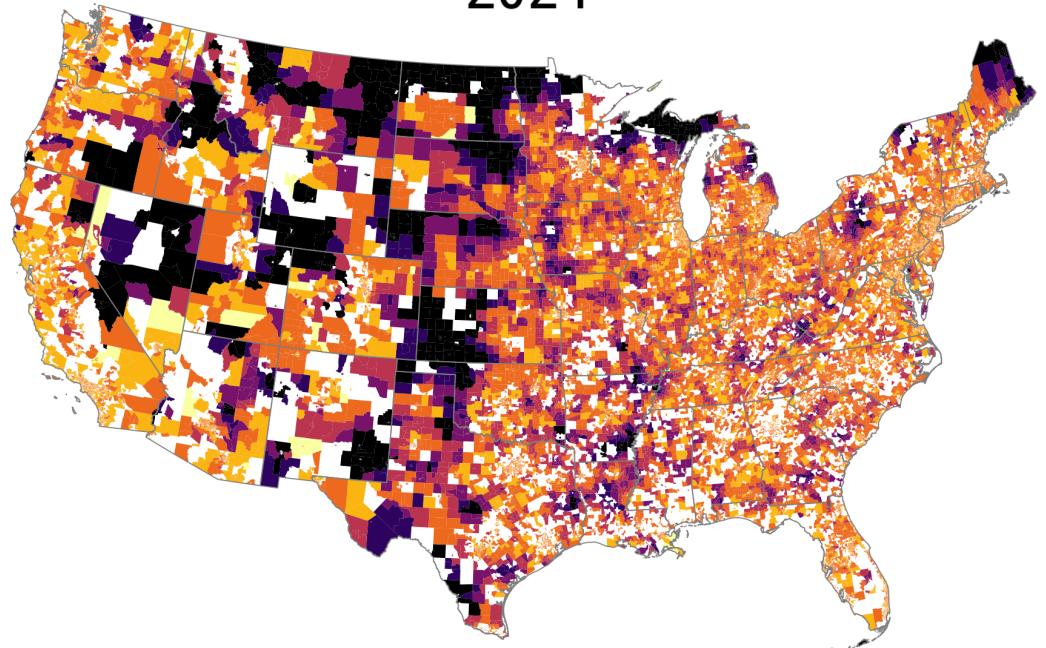
Source: Roberson, Laura A., *Pantha, S., & Helveston, J.P. (2024) "Battery-Powered Bargains? Assessing Electric Vehicle Resale Value in the United States" Environmental Research Letters.

The BEV Deserts of America

2016



2024



Additional travel time to nearest <\$25,000 BEV (Minutes)



-20 0 20 40 60 80