

EV EXTRAVAGANZA

WILL MY NEXT CAR BE ELECTRIC?

9.24.XX

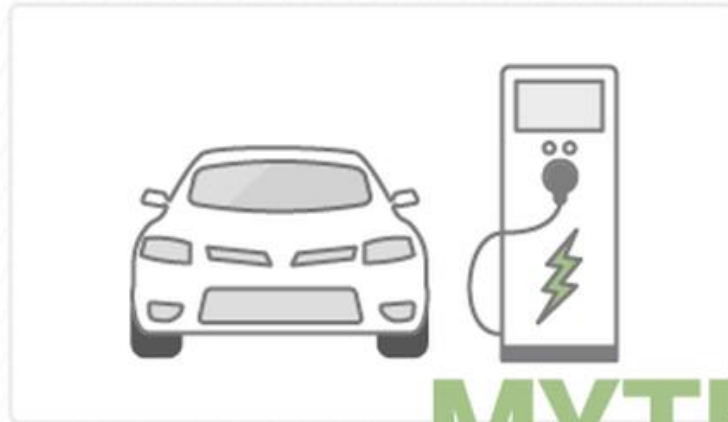
 ColdFusion

# *TESLA OF THE 1990'S*



# EV FACT vs. FICTION

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MYTHS  
**BUSTED**

© EnergySage

# MYTH #1: ELECTRIC VEHICLES ARE MORE EXPENSIVE

**Fact: Prices continue to drop and new less expensive models are being offered. Tesla prices now compete with the average price for a new car.**

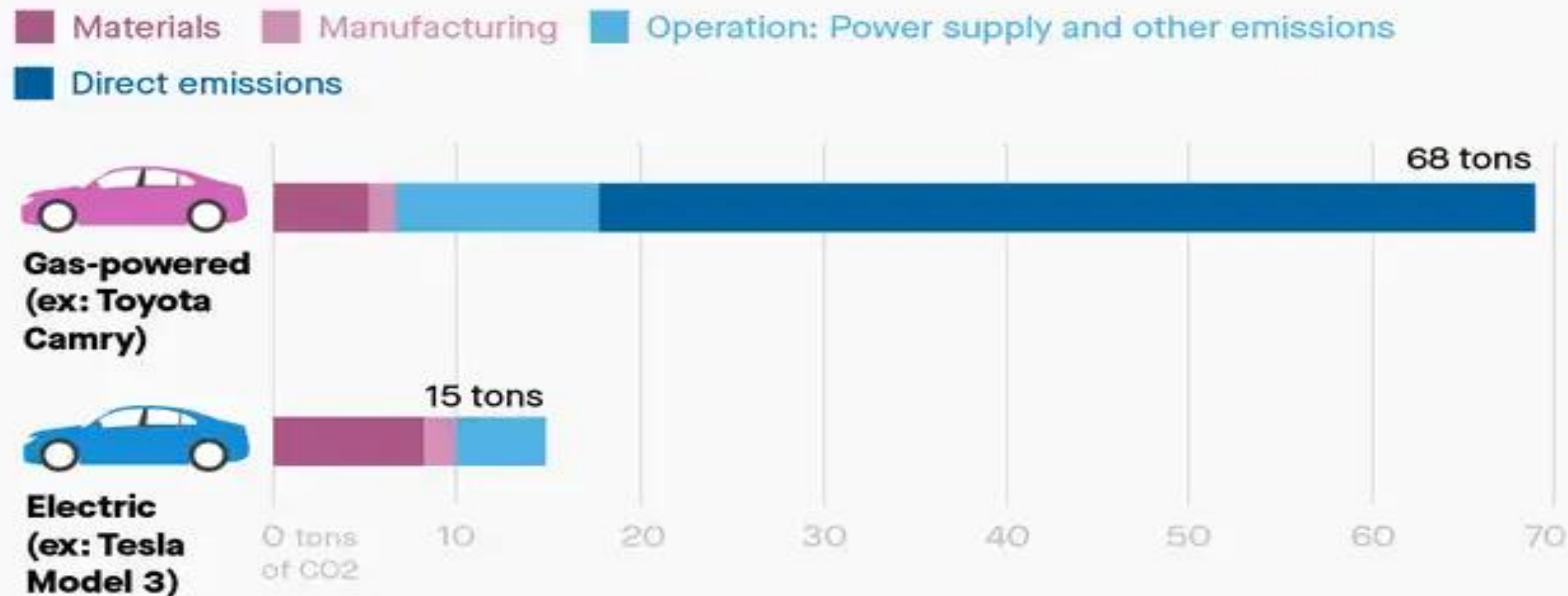
MYTH #2: ELECTRIC VEHICLES ARE WORSE FOR THE CLIMATE THAN GASOLINE CARS BECAUSE OF POWER PLANT EMISSIONS.

**FACT: Electric vehicles typically have a smaller carbon footprint than gasoline cars, even when accounting for the electricity used for charging.**

MYTH #3: ELECTRIC VEHICLES ARE WORSE FOR THE CLIMATE THAN GASOLINE CARS BECAUSE OF BATTERY MANUFACTURING.

**FACT: The greenhouse gas emissions associated with an electric vehicle over its lifetime are typically lower than those from an average gasoline-powered vehicle, even when accounting for manufacturing**

## Life-cycle carbon emissions intensity of internal combustion engine vehicles vs. electric vehicles



Quartz | qz.com | Data: International Energy Agency 2021, Hoekstra and Steinbuch et. al | Note: A direct emission is tailpipe exhaust from gas-powered cars. EVs do not have direct emissions but emit carbon through the production of electricity required to charge the battery.



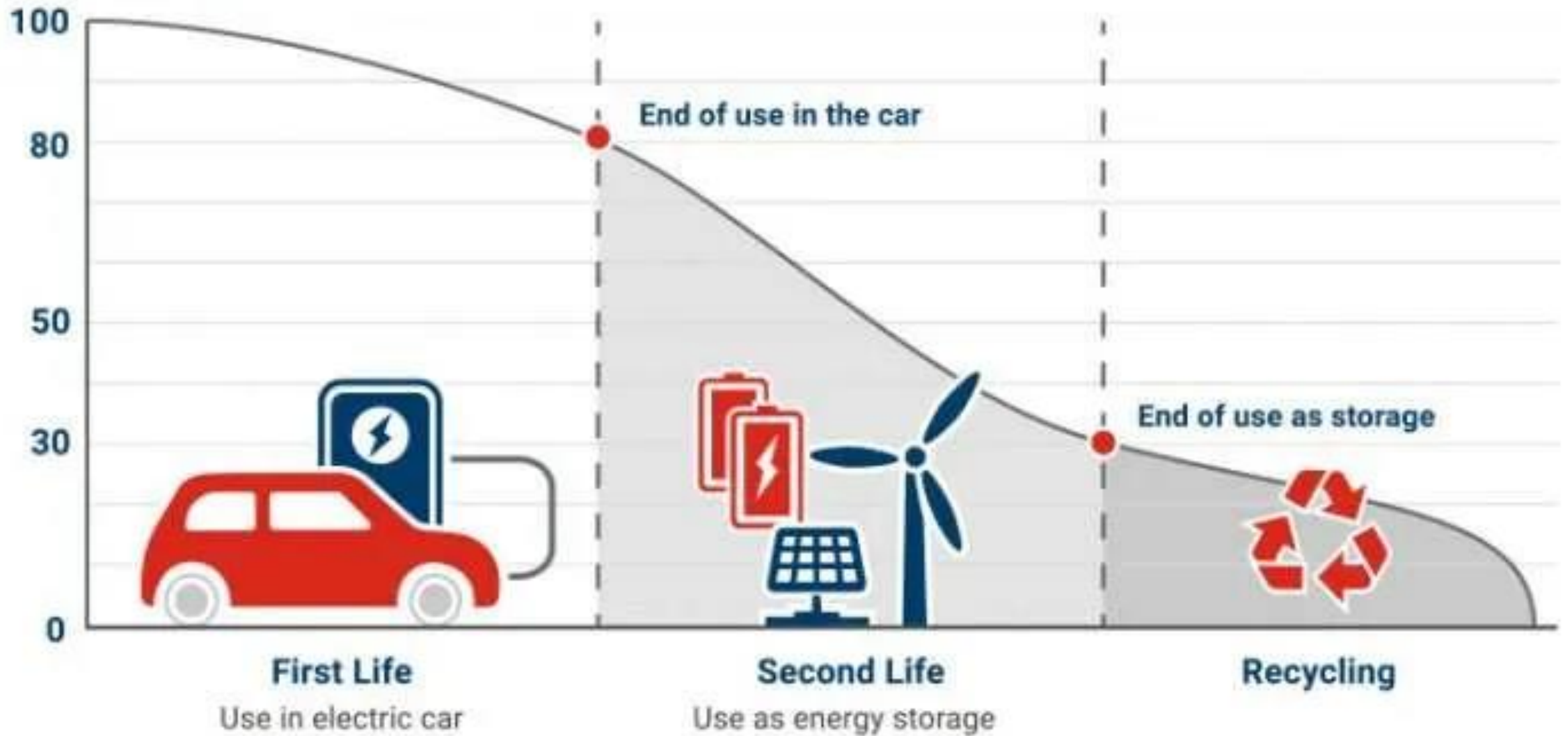
“Don’t worry—our EV will win in the long run.”



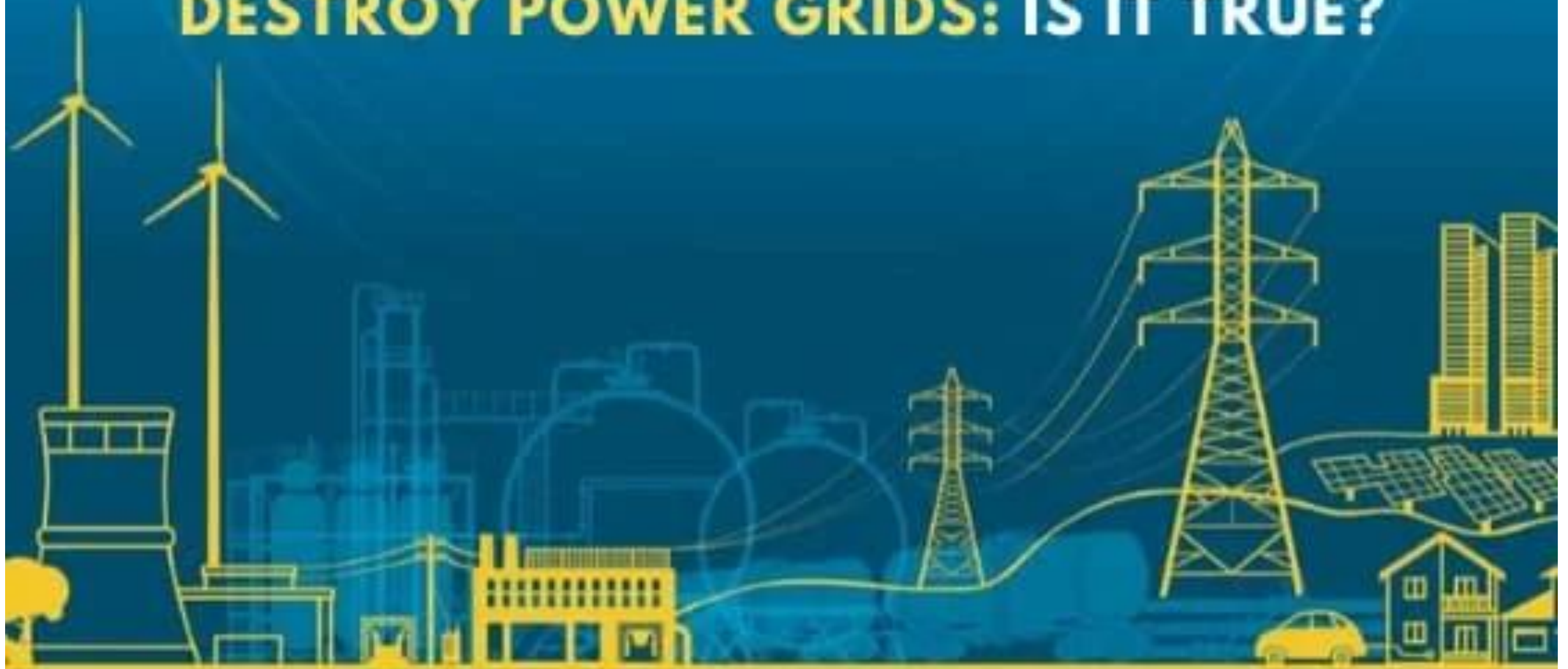
## MYTH #4 THERE AREN'T ENOUGH MINERALS FOR BATTERIES

**FACT: California has enough Lithium to meet US demand for over 100 years. There is a cobalt surplus and batteries are being produced without using rare earth minerals. In addition, 90% of minerals in EV batteries can be recycled or re-purposed.**

Battery capacity in %



# INCREASING ELECTRIC VEHICLES WOULD DESTROY POWER GRIDS: IS IT TRUE?



MYTH #5: THE INCREASE IN ELECTRIC VEHICLES  
ENTERING THE MARKET WILL COLLAPSE THE U.S.  
POWER GRID.

**FACT: Electric vehicles have charging strategies that can prevent overloading the grid, and, in some cases, support grid reliability.**

**JOHAN ENSLIN**

DIRECTOR OF ACADEMIC PROGRAMS AT CLEMSON U.

RESEARCH AT DUKE: NORTH CAROLINA

DRIVERS FOR EV

IRPs

REDUCTION OF GREENHOUSE GASSES

FLEET CONVERSION

SCHOOLS/AIRPORTS CONVERTING TO EV

WE'VE DONE FEEDER ANALYSIS

START WITH DISTRIBUTION

BOTTOM-UP MODEL

1 RESIDENTIAL CASE STUDY

FOLK WANT EVs TO CHARGE AT HOME

2 CITY FLEET CHARGING

ALSO HOTELS CHARGING VEHICLES

1 RESIDENTIAL

WE ASSUME ONE EV PER HOUSEHOLD

TIME-OF-USE NOT PRACTICAL FOR FLEET

THEREFORE A LITTLE BIT LESS IMPACT

CHARGE AT NIGHT FOR FLEET

FAST CHARGERS BY HIGHWAYS

BUSSES MIGHT GET TO HAVE CHARGE DURING DAY TOO

INCORPORATING EV CHARGING STATIONS INTO UTILITIES' DISTRIBUTION & INTEGRATED RESOURCE PLANNING

AROUND \$10M TO MITIGATE

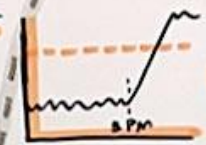
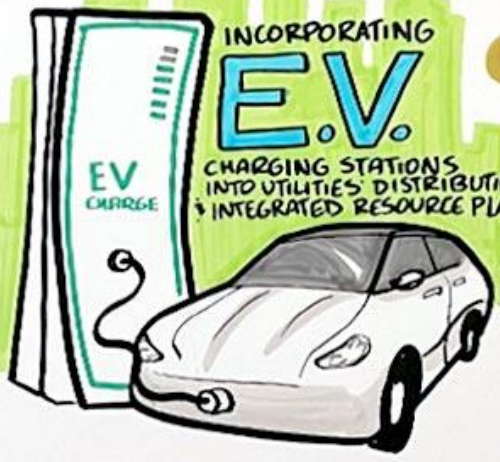
ADDRESS TIME-OF-USE APPROACH → DECENT RESULTS

WE MORE TRANSFORMERS AT BACK OF HOUSES

THIS IS A PROBLEM

100% LOAD INCREASE

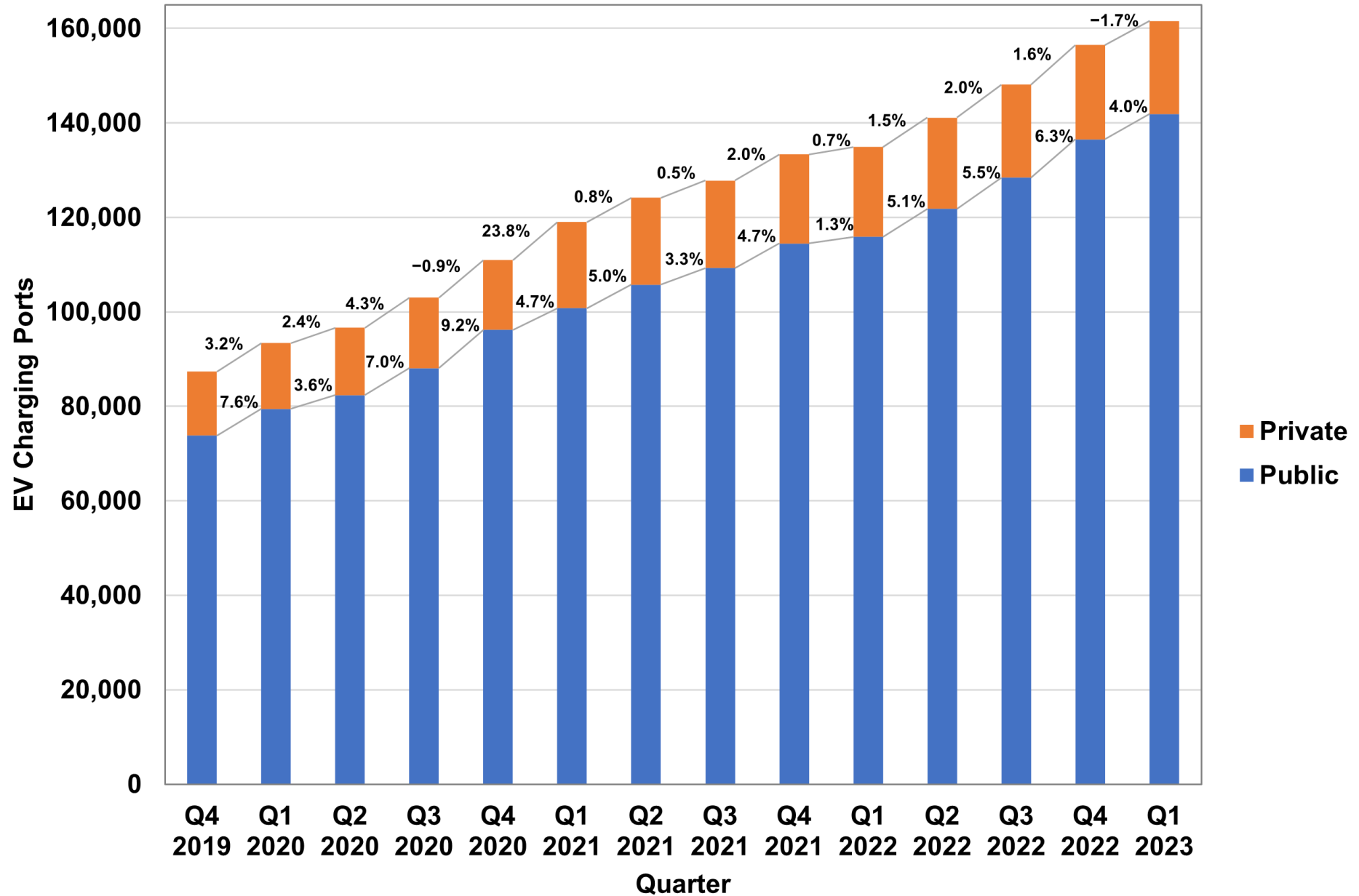
WE'RE GOING TO SEE SPIKES WHEN PEOPLE GET HOME



MYTH #6: THERE IS NOWHERE TO CHARGE.

**FACT: Electric vehicles can be plugged into the same type of outlet as your toaster! When you need to charge while on the road, you'll find over 51,000 stations in the U.S. available to the public.**

## Number of EV Charging Ports by Access Type, Quarter 4, 2019 – Quarter 1, 2023



MYTH #7: ELECTRIC VEHICLES DON'T HAVE ENOUGH RANGE TO HANDLE DAILY TRAVEL DEMANDS.

**FACT: Electric vehicle range is more than enough for typical daily use in the U.S. EV range continues to increase with some now having over 400 miles of range.**



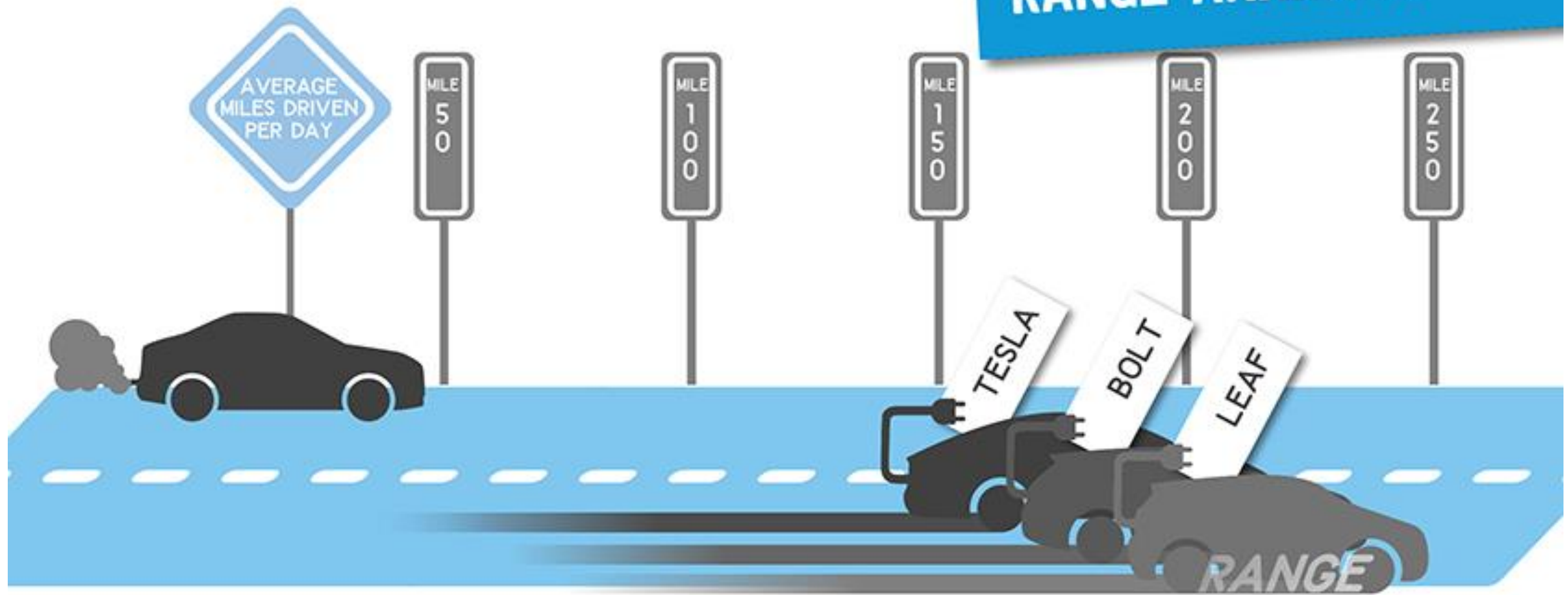
# 621 MILE EV BATTERY PACK

**Gotion High-Tech sparked a wave of optimism after it announced last year that its highly anticipated 621-mile EV battery pack would soon begin mass production, and the China-headquartered company has reportedly been working to uphold that promise.**

**According to Energy Storage News, the battery maker's new factory in Fremont, California, manufactured its first battery pack near the end of December.**

**Gotion, whose revolutionary Astroinno lithium-ion battery allows electric vehicles to drive 621 miles on a single charge, also intends to open plants in Illinois and Michigan.**

# RANGE ANXIETY?



MYTH #7: ELECTRIC VEHICLES ARE NOT AS SAFE AS  
COMPARABLE GASOLINE VEHICLES.

**FACT: Electric vehicles must meet the same safety standards as conventional vehicles. A recent study found ICE cars had 1,529.9 fires per 100,000 miles, and Evs had just 25.1 fires per 100,000 miles.**

## MYTH #8 ELECTRIC CARS ARE EXPENSIVE TO MAINTAIN

**FACT: Electric car batteries can last 10-20 years. As the EV automobile market moves towards incorporating high performing batteries, this life span may extend to over 20 years. Furthermore, since 2010 the cost of lithium-ion batteries have reduced by 90% and still depleting. Because electric vehicles have fewer changing parts, more effective cooling systems, and do not require oil management, their total maintenance costs are minimal.**



A WOMAN CHARGES HER TESLA IN ANN ARBOR, MICH., ON JAN. 17, 2024.  
A SUBZERO COLD SNAP ACROSS NORTH AMERICA HAS MADE CHARGING  
DIFFICULT FOR SOME ELECTRIC VEHICLE OWNERS. (AP)

## MYTH #9: ELECTRIC CARS DON'T PERFORM WELL IN COLD WEATHER

**FACT: Both gas and electric vehicles are less efficient in extreme weather.** Electric vehicles are designed to handle all kinds of weather, from scorching summers to freezing winters. However, there is some validity behind the concerns that extreme weather can impact how well electric vehicles perform, possibly limiting the range and charging time. There are useful tips for EV owners to follow to maximize range and efficiency.



ELECTRIFY AMERICA OPENS ITS LARGEST EV CHARGING STATION IN CALIFORNIA

## MYTH #10 ELECTRICAL VEHICLE CHARGING IS SLOW

**FACT:** It's true that the time it takes to charge an EV varies, and that regardless of the option, it's likely to take longer than it does to fill up a gasoline-powered vehicle. But that doesn't mean charging has to take an extraordinarily long time, or that it's impossible to own one because of the charging times. Most charging can be done at home. Level 3 chargers can get you 120 miles of charge in less than 20 minutes.



**This Year One in Five Cars Sold Globally Will Be an EV**

# **SHOULD YOU BUY AN EV IN 2024?**

**California Electric vehicle sales were up 29% in 2023**



A RECORD 1.2 MILLION EVS WERE  
SOLD IN THE U.S. IN 2023

USA: 10% OF NEW CARS  
CA: 25% OF NEW CARS  
CHINA: 40% OF NEW CARS  
EUROPE: 30% OF NEW CARS



# ARE PEOPLE NOT BUYING ELECTRIC VEHICLES?

**The 2024 U.S. automotive forecasts from AutoPacific, Cox and S&P Global Mobility. Their projections show increases in EV sales ranging from about 20 percent, from AutoPacific, to more than 30 percent from the others, compared to the prior year.**

**EV sales are increasing faster than any other segment in the industry, said Michelle Krebs, executive auto analyst for Cox.**



# TESLA MODEL Y

One of the most complete and iconic EVs available today, the Tesla Model 3 performs well in almost every department. TopGear named the Model 3 the saloon of the year in 2019, and of course, there were reasons. The Model 3 makes use of a 283 horsepower electric motor that puts out 302 pound-feet of torque. With a range of 272 miles. The most affordable Tesla is the Model 3 Standard Range Plus at \$41,190 (there is no \$7,500 federal tax credit). It has 262 miles of range (422 km).



TESLA MODEL 3



TESLA MODEL S



# TESLA MODEL X



# TESLA CYBER TRUCK





# TESLA ROADSTER

The first all-electric pickup - Rivian R1T - starts at an effective price of \$60,000 and offers 314 miles (505 km) of range. In the not far future, there will be a \$10,000 more expensive version with 400 miles (644 km) of range. In this year's rankings, Rivian was the *only brand*, out of 29, to reach a satisfaction score of 5 out of 5. (Consumer Reports).



RIVIAN R1T



# RIVIAN R1S



## RIVIAN R2



Price Range: \$57,195 - \$69,695.

## CADILLAC LYRIC



CADILLAC CELESTIQ



BUICK ELECTRA COMING THIS FALL (\$60,000)

# CHEVY BLAZER

Coming in May!



**MOTORTREND**  
SUV OF THE YEAR 2024



The Chevy Equinox EV will get 319 miles of range and start at around \$35,000/ With tax credits, that price could get as low as \$27,495  
Coming in May!.



## CHEVY EQUINOX



CHEVY SILVERADO EV -- 400 MILE RANGE



HUMMER SUV



The electric swifter is everything Ford is reputed for with an electric soul. The Mach-E is the result of the marque's effort to disperse its electric presence before others in the competition. Well, it has been successful to an extent so far. The Mach-E is one of the best-rated vehicles in North America and is widely seen too. The Mach-E with AWD powertrain generates 346 horsepower and 580Nm torque. In terms of speeds, the car cracks 60 mph in merely 3.5 seconds. The least expensive 300-mile BEV is the Ford Mustang Mach-E Route 1 ER RWD - effectively at \$44,000. It has a big 98.8 kWh battery for 305 miles (491 km) of range. The power output is 216 kW, enough for 0-60 mph in 6.1 seconds.



2025 FORD EXPLORER EV (STARTING LESS THAN \$50,000)



# EV LIGHTNING



# LINCOLN AVIATOR



# DODGE CHARGER





RAM 1500 REV

**The Nissan LEAF is the cheapest EV thanks to a MSRP price reduction. The entry-level version with a 40 kWh battery and 110 kW electric motor is offered at an MSRP of \$27,400 (+\$975 DST), which effectively is \$20,875 (thanks to full \$7,500 federal tax credit)**

NISSAN LEAF





NISSAN ARIYA



# HYUNDAI KONA

**With a cool disposition, the Ioniq 5 feels more road-ready than many. The AWD version is equipped with two motors and a 72.6 kWh 653 V lithium-ion battery generating a total of 305 horsepower. According to the EPA estimations, it can offer a range of over 300 miles**



IONIC 5



## IONIC 6

**Hands down, one of the most competitive EVs in the market today, the EV6 checks virtually every box. The car performs well on almost every scale. The SUV offers a hefty 326 miles in range coupled with magnificent ultra-fast charging technology that takes the gauge to 80 percent from ten percent in just 18 minutes. The car can achieve a top speed of 119 mph,**



GENESIS EV70 -- 236 MILE RANGE-- \$67,800+

# POLSTAR 2



**Polestar 2 achieves what most modern cars fail to even reach close to - sensibility and simplicity. The mindful construction of the machine radiates common sense. It's been built to run, offer comfort, and reduce the need for maintenance like all cars are supposed to be. The Polestar 2 packs dual electric motors that make 472 horses combined. They obtain power from a 78 kWh lithium-ion battery (27 modules). Polestar 2 can achieve a top speed of 127 miles while the impressive acceleration promises 0-60 mph in 4.5 seconds. \$45,900-\$49,900**





POLSTAR 3



POLESTAR 4



POLSTAR 5



BMW 14  
\$52,200



BMW 15

# BMW iX



**The BMW iX is robust yet clean and elegant.” For a full-size SUV, the BMW shows real caliber in important aspects. The car is spacious, well-built, and guarantees solid performance, although the range is just above average. The iX offers 264 miles in range. However, the charging speed is rapid. The iX can travel a distance of 60 miles with just 10 minutes of charging given the charging capacity is up to 150 kW \$87,100+**

# BMW 17



The MINI Cooper SE (effectively \$23,250), is really a niche vehicle with only 114 miles of range (183 km)



MINI ELECTRIC





MERCEDES BENZ EQB \$54,200

**For many, it's the best electric vehicle in the premium segment. The EQS brings absolute power, a sense of comfort, and as great a charging experience as fueling up a car. You can crack the 80% mark on the charge gauge in just 31 minutes.**



## MERCEDES BENZ EQS



MERCEDES BENZ EQE



PORSCHE MACAN EV

# PORSCHE TAYCAN



**The gorgeous GT spells super performance. Though the Taycan might seem a little impractical to many, it has it to impress even sensible buyers. The sporty beaut features a 79.2-93.4 kWh 800 V lithium-ion battery that offers a top range of 246 miles.**



2026 KIA EV3 \$30,000-\$42,000



KIA EV6 -- 310 MILES RANGE -- \$67,990



KIA EV9



The all-new Volkswagen ID.4 AWD Pro is the most affordable electric car with all-wheel drive. It starts effectively at \$37,370 and offers 82 kWh battery, 249 miles (401 km) of range and 220 kW of system output. Enough for a 0-60 mph sprint in 5.7 seconds.



VW ID4 \$41,160

The I.D. Buzz is coming to the US this Fall. It has a range of up to 263 miles. At DC fast-charging stations, ID. Buzz can pull as much as 170 kW, allowing for 5 to 80 percent charging in just 30 minutes.



I.D. BUZZ



2025 VW ID 7

## AUDI Q4 ETRON



**For those who have been eyeing cars that set buyers back by over \$100,000, the e-tron GT is worth taking a look at. Quick, comfy, and well-built, the car offers better value for your money than most in the class. The electric range of up to 300 miles is going to make charging a weekly business for drivers with citywide operations. The car uses one electric motor and a 95 kWh battery pack as the power source. The e-tron GT reaches a maximum speed of 124 mph and enjoys acceleration that's capable of escalating the speed to 62 mph from nothing in 5.7 seconds.**



AUDI Q8 E-TRON



JEEP AVENGER EV (ONLY SOLD IN EUROPE)



VOLVO EX30

Coming in April



HONDA PROLOGUE



\$59,574



TOYOTA BZ4X

**\$48,109**



SUBARU SOLTERA

The range king (over 500 miles) - Lucid Air Grand Touring starts at an effective price of \$133,000. The Dream Edition is \$30,000 more expensive.



## LUCID AIR

# Jaguar I-Pace



**With I-Pace, the maker puts phenomenal power in a compact yet spaciouly, comfy body. Despite being power-centric, the car offers a generous driving range of 292 miles on a full charge. However, charging the vehicle might feel like a bit of work as it takes over eight hours to top off the battery**

**\$32,500**



FIAT 500E



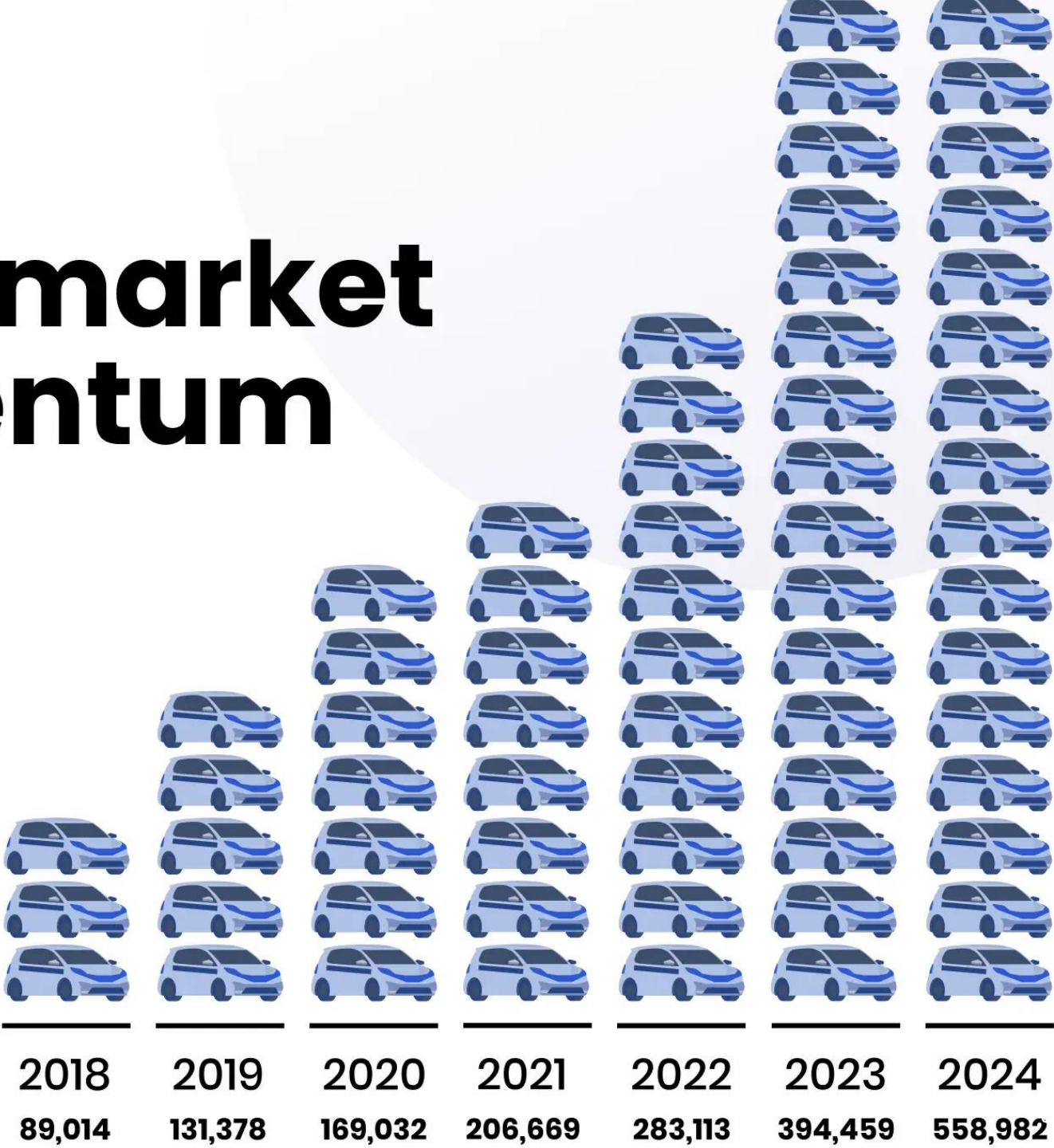
VIN FAST VF8 \$49,000-\$56,000



VIN FAST VF9 \$79,800

Q1 2024 Market Report

# The used EV market gains momentum





## Base price (MSRP + DST and after Tax Credit)

### All-electric range (EPA)

	\$0	\$50 000	\$100 000	\$150 000	\$200 000
2022 Nissan LEAF S (40 kWh)	149	\$20 875			
2022 MINI Cooper SE	114	\$23 250			
2022 Nissan LEAF e+ S (62 kWh)	226	\$25 875			
2021 Hyundai IONIQ Electric	170	\$26 750			
2022 Mazda MX-30	100	\$27 145			
2022 Hyundai Kona Electric	258	\$27 685			
2022 Nissan LEAF e+ SV (62 kWh)	215	\$30 875			
2022 Chevrolet Bolt EV	259	\$31 995			
2022 Kia Niro EV (e-Niro)	239	\$33 665			
2021 Volkswagen ID.4 Pro	260	\$33 690			
2022 Chevrolet Bolt EUV	247	\$33 995			
2021 Ford Mustang Mach-E Select SR RWD	230	\$36 495			
2021 Volkswagen ID.4 AWD Pro	249	\$37 370			
2021 BMW i3	153	\$37 945			
2021 Volkswagen ID.4 Pro S	250	\$38 190			
2021 Ford Mustang Mach-E Select SR AWD	211	\$39 195			
2022 Polestar 2 Single Motor 19"	265	\$39 700			
2021 BMW i3s	153	\$41 145			
2021 Tesla Model 3 Standard Range Plus	262	\$41 190			
2021 Tesla Model 3 Standard Range Plus	263	\$41 190			
2021 Volkswagen ID.4 AWD Pro S	240	\$41 870			
2022 Polestar 2 Dual Motor 19"	249	\$43 700			
2021 Ford Mustang Mach-E Route 1 ER RWD	305	\$44 000			
2021 Ford Mustang Mach-E Premium ER RWD	300	\$46 200			
2022 Volvo XC40 Recharge	223	\$48 895			
2021 Ford Mustang Mach-E Premium ER AWD	270	\$48 900			
2021 Tesla Model 3 Long Range AWD	353	\$51 190			
2022 Volvo C40 Recharge	210	\$52 345			
2021 Ford Mustang Mach-E GT ER AWD	270	\$53 500			
2021 Tesla Model Y Long Range AWD 19"	326	\$55 190			
2021 Tesla Model 3 Perf. LR AWD 20"	315	\$58 190			
2021 Ford Mustang Mach-E GT Perf. ER AWD	260	\$58 500			



# VISIT WITH EV OWNERS

**TELL US ABOUT YOUR CAR**

**WHAT IS ITS RANGE?**

**WHAT ARE ITS BEST FEATURES?**

**WHAT HAS BEEN YOUR EXPERIENCE (PRO OR CON)?**

THANKS FOR COMING!