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KEY ISSUES FACING THE EV INDUSTRY IN 2023

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Agenda

- Background/State of Markets
- Key Issues in 2023
- 2021 Infrastructure Investment & Jobs Act
- 2022 Inflation Reduction Act

Background/State of Markets

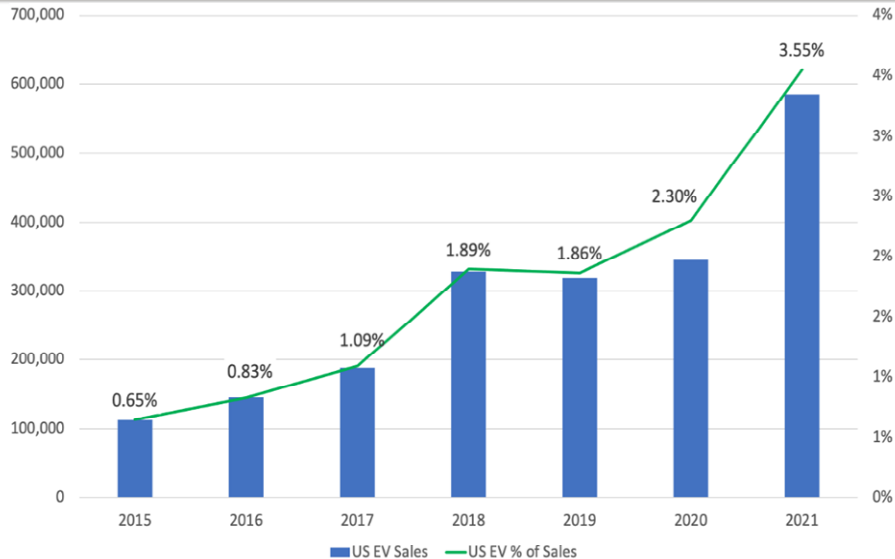
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Market Penetration

- Electrification efforts of the US transportation sector are strong and growing.
- More than 800,000 fully electric vehicles (EVs) were sold in the United States in 2022, which is nearly 6.0% of all vehicles sold.
- In comparison to recent years,
 - 3.2% of all vehicles sold in 2021 were fully EVs
 - 2020 and 2019 saw similar sales percentages (i.e., in 2019, the sale of about 327,000 EVs)

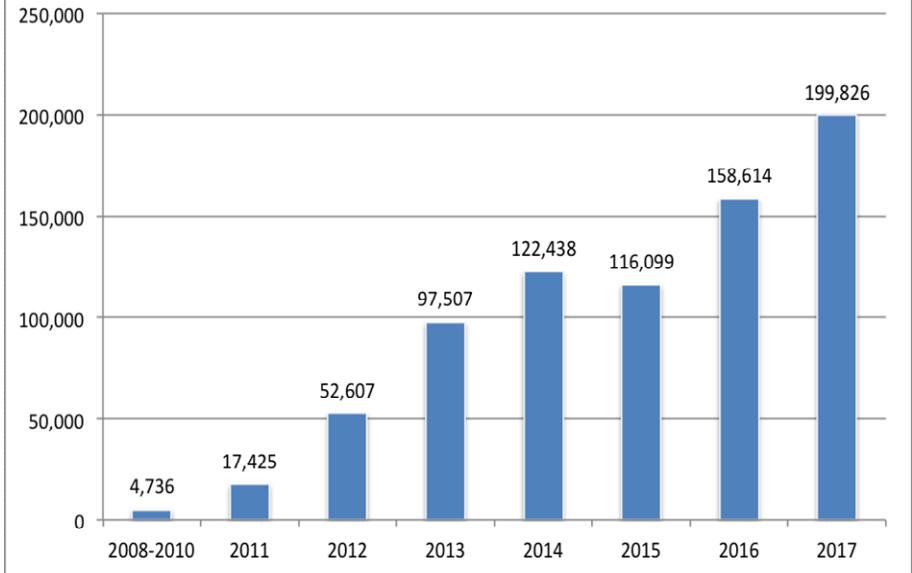
Market Penetration

US EV (BEV & PHEV) Share of New Vehicle Sales: 2015-2021



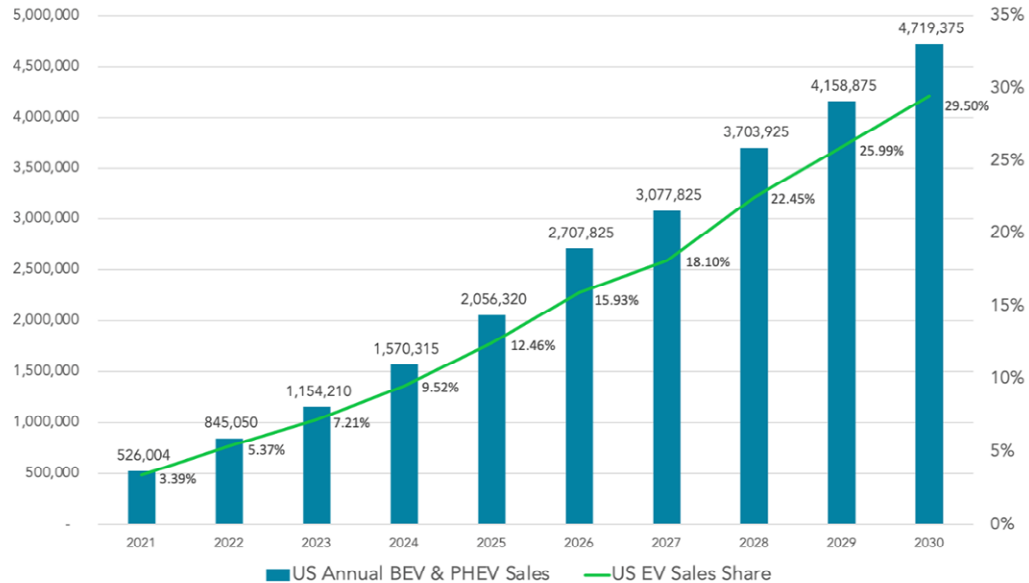
Data: GoodCarBadCar.net, InsideEVs, Auto Manufacturers Alliance/IHS Markit, Automotive News
Chart & Forecasts: Loren McDonald / EVAdoption.com

Annual US Electric Vehicle Sales



Market Projections

US EVs (BEV & PHEV) Sales & Sales Share Forecast: 2021-2030

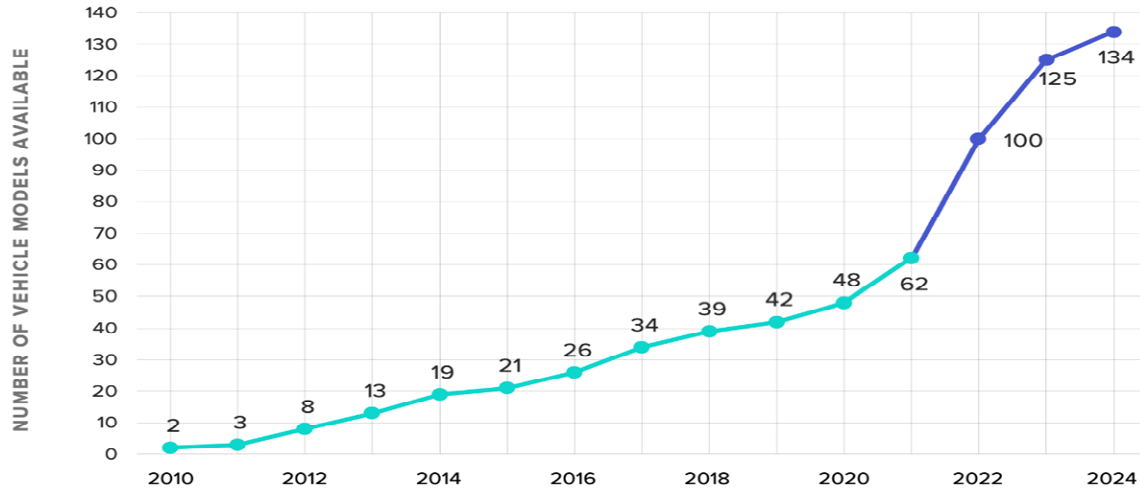


Historical Sales Data: GoodCarBadCar.net, InsideEVs, IHS Markit / Auto Manufacturers Alliance, Advanced Technology Sales Dashboard | Research & Chart: Loren McDonald/EVAdoption

Market Projections

In 2022, U.S. Consumers Seeking an Electric Vehicle Expected to See a Notable Uptick in Their Options

Total number of electric vehicle models (historic and projected) in the U.S. market



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Source: Electric Power Research Institute

Key Issues in 2023

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Reducing or Eliminating Range Anxiety

- Range anxiety is the fear that the EV won't have sufficient charge to complete its duty and is still perceived to be one of the greatest barriers preventing fleets from going electric.
 - 48% of US-based respondents said they were concerned about range
 - 47% cited charging time
 - 46% cited lack of public charging infrastructure
- Press OpEds illustrate consumer range anxiety
 - *I Rented an Electric Car for a Four-Day Road Trip. I Spent More Time Charging It Than I Did Sleeping*, Wall Street Journal (June 3, 2022).
 - *Reporter Finds EVs Not Suitable For Long Road Trips: 'Many Charging Stops, Little Sleep'*, Washington D.C. Business Daily (Aug. 25, 2022).
 - *J.D. Power: Electric Car Charging Getting Worse*, Kelley Blue Book (Feb. 13, 2023).
 - *Learning The Hard Way: Not All EV Charging Experiences Are Created Equal*, Automotive News (Feb. 12, 2023).

Reducing or Eliminating Range Anxiety

- Three primary problems are driving continuation of range anxiety:
 1. Lack of public charging stations
 - Approximately 126,500 Level 2 stations/20,431 Level 3 stations
 - S&P Global Mobility says that in 2025, the United States will require 700,000 Level 2/70,000 Level 3 chargers
 - Looking to 2030, 2.13 million Level 2/172,000 Level 3 public chargers will be required
 2. Reduction in reliability in charging stations
 - According to J.D. Power's Electric Vehicle Experience Public Charging study, quoted by *Automotive News*, the number of failed charging attempts grew from 15% in the first quarter of 2021 to more than 21% by the third quarter of 2022
 - At worst, almost two in five visits to chargers – or 39% – were unsuccessful last year
 3. Uncertainty in most viable business case/business model for successfully monetized charging station operations

Reducing or Eliminating Range Anxiety

- More charging:
 - Access to federal funding (i.e., NEVI – discussed later)
 - Pathway to successfully monetizing charging infrastructure
 - Advertisement revenue;
 - Data collection and usage revenue opportunities;
 - Energy sales and demand (charge) management;
 - Retail partnership opportunities
 - Effective and efficient interconnections for infrastructure
 - Minimize siting risk exposure and promote reputational brand through beneficial site host agreements
- More reliable charging:
 - Issuance of DOT standards and widespread applicability of same
 - Contractual provisions concerning uptime and outages

Battery Component and Critical Mineral Supply Sourcing and Recycling

- Role of the BiL and the IRA's tax credit provisions in bringing this issue to the forefront.
- The availability of funding opportunities for battery and mineral refining, processing, and manufacturing require a close analysis of qualification criteria for such funding as well as an appreciation for the conditions that may be imposed to funding recipients.
- Market participants are still waiting for the IRS and Treasury's issuance of guidance, now expected in March, that will officially explain how the IRS and Treasury will apply the Internal Revenue Code's Section 30D critical mineral and battery component thresholds for purposes of determining whether an EV is eligible for tax credits.
- The extent to which battery disposal or second- use cases are or should be regulated in the United States.

Battery Component and Critical Mineral Supply Sourcing and Recycling

What do we mean by “free trade” country?

What about a country of foreign concern?

What about partnerships or joint ventures between US and foreign entities?

EV Infrastructure and Interconnected Utility Data Protection and Cybersecurity

- The extent to which EVs and EV infrastructure may be used as an entry point for hackers or bad actors to disrupt the US electric grid.
- Whether undeveloped cybersecurity and data protection standards and requirements applicable to EV infrastructure may create vulnerabilities for the safety of consumer data and opportunities for hackers to exploit as an entry point into US electric grid disruption attempts.
- Where jurisdictional authority may exist to impose such regulatory oversight or standards as well as the practical consideration of doing so.

Vehicle-to-Grid Market Access, Monetization, and Regulatory Implications

- Bidirectional charging enables EV customers or fleet owners to utilize V2G capabilities, which can facilitate market access.
 - V2G potential creates opportunities for load management and revenue stream for EV owners.
 - For fleet owners in particular, this opportunity is particularly promising because fleet energy, in the aggregate, could provide substantial opportunities to capture previously unavailable revenue opportunities.
- V2G may trigger the needs for energy services management functions between the EV operator and either (i) its owner or (ii) the CPO.
- EV and EV fleet owners must be mindful of market access rules and market participation requirements, whether it be retail or wholesale energy markets.

2021 Infrastructure Investment & Jobs Act

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2021 Infrastructure Investment & Jobs Act

- **How it started...**

- \$1.2 trillion devoted to improving US infrastructure.
- Included \$65 billion investment to upgrade renewable energy infrastructure.
- Included a separate \$7.5 billion investment to build out national EV network.
 - Goal of having 500k EV chargers by 2030.
 - There were concerns over how funds will be allocated to states.

2021 Infrastructure Investment & Jobs Act

- **How it's going...**

- DOT and DOE released guidance on deploying the \$7.5 billion EV budget.
- NEVI Program vs. Grant Program
- How have states engaged?

2021 Infrastructure Investment & Jobs Act

**What does
state
deployment
look like?**

- California's deployment plan...an enviable model from a state that has a good head start on this.
- Alaska's deployment plan...a state on the other side of the continuum, getting up and running.

2021 Infrastructure Investment & Jobs Act

Opportunities

- States taking solicitations from companies to deploy funds.
- Further opportunities to work with states to seek discretionary grants.

2022 Inflation Reduction Act

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2022 Inflation Reduction Act (IRA)

- Signed into law on August 16, 2022 and effective beginning in 2023.
- Builds on 2021 IIJA by directing an additional \$370 billion toward clean energy.
- For EVs, the IRA largely encourages investment through providing tax credits in one of three buckets:
 - New clean vehicle tax credits.
 - Used clean vehicle tax credits.
 - Commercial clean vehicle tax credits.
- “Clean Vehicle” defined.

2022 IRA – New Clean Vehicle Tax Credits

- Update of existing rules.
- Tax credit of up to \$7,500.
- To qualify for the credit, there are limitations on
 - How the vehicle is used;
 - The income of the purchaser;
 - The MSRP of the vehicle; and
 - Manufacturing and assembly;
 - Battery capacity.
- Credit is nonrefundable and cannot be carried forward.

2022 IRA – Used Clean Vehicle Tax Credits

- Brand-new credit for used vehicles.
- Tax credit of up to \$4,000.
- To qualify for the credit, there are limitations on
 - WHEN
 - WHO
 - WHERE
 - WHY
 - WHAT
- Credit is nonrefundable and cannot be carried forward.

2022 IRA – Commercial Clean Vehicle Tax Credits

- New credit for commercial vehicles
- Credit calculation is nuanced
- To qualify for the credit, there are limitations on
 - WHO
 - WHERE
 - WHAT
- Credit is nonrefundable but **CAN** be carried forward.

2022 IRA – Open Questions and Issues with the Credits

- Getting the credit can involve more than just buying the car.
- What vehicles are eligible?
- Concerns over global economic impact.
- How effective will this be?

Questions?

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Biography



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Levi McAllister, head of the firm's Electric Vehicles (EV) Working Group and Energy Commodity Trading and Compliance Working Group, helps energy companies navigate the quickly evolving regulatory and investment environment for both conventional and emerging energy technologies. As more sectors look to creative solutions to mitigate the effects of climate change, Levi guides clients seeking to reduce their carbon footprints and take advantage of new and evolving energy storage and infrastructure assets, while also advising on energy commodity trading and the deployment of EVs and EV infrastructure in US markets. He is a member of the National Native American Bar Association and a frequent public speaker on energy issues.

Biography



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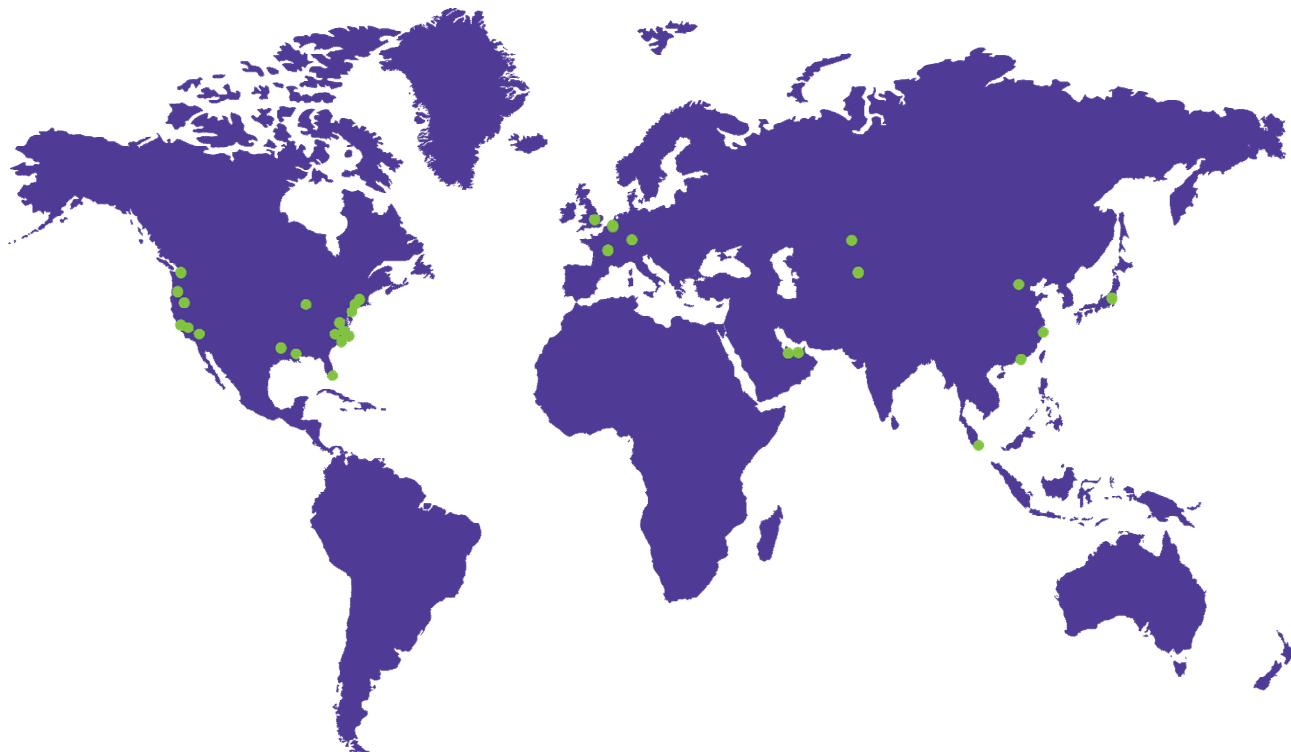
Justin D. Cupples focuses his practice on providing the highest quality State and Local Tax (SALT) counsel and advocacy to Fortune 500 companies and large multistate organizations. Justin obtains significant state tax savings for his clients by developing and implementing state tax return positions, defending state tax audits, and advocacy through administrative appeals and litigation.

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