

**WRITTEN TESTIMONY BEFORE THE
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
U.S. HOUSE OF REPRESENTATIVES**

**ILLINOIS FIELD HEARING ENTITLED
*“Pedal to the Metal: Electric Vehicle Batteries and the Critical Minerals Supply Chain”***

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Chairman Foster, Ranking Member Obernolte and distinguished Members of the Subcommittee, thank you for the honor of appearing before you today for this important hearing to discuss ways for the United States to meet surging demand for battery electric vehicles (EVs).

My name is Chris Nevers and I am the Senior Director of Public Policy for Rivian Automotive, LLC.

We appreciate the unique setting for this field hearing to highlight how Illinois is leading the nation in securing our domestic EV and battery manufacturing supply chains.

Rivian is proud to manufacture its vehicles in Illinois. In 2017, the company acquired the former Mitsubishi production plant in the town of Normal. Originally slated to be torn down and repurposed for mixed use residential and commercial, Rivian has instead invested \$2 billion into this facility and already created nearly 5,000 direct manufacturing jobs. We are now producing three models there: a light duty pick-up, a seven-seater SUV, and a commercial delivery van designed and engineered by Rivian in collaboration with Amazon, our first commercial customer. The R1T, our flagship vehicle, is the first all-electric pickup in the U.S. market and the 2022 MotorTrend Truck of the Year.

We remain focused on ramping up production at our plant in Normal, Illinois, and making significant investments in our next-generation vehicle platforms with bi-directional charging capability, improved cold weather efficiency, and new battery pack designs and chemistries.

Rivian’s mission is to ‘keep the world adventurous forever’ and we’ve committed to both decarbonizing our business and helping to protect critical natural carbon sinks—complementary and necessary work that is required to address the climate crisis.

To address climate change, remain globally competitive and strengthen our national economic security, the United States must make transportation electrification a priority. Building a domestic battery and mineral supply chain will reduce costs and risks for companies like Rivian that have invested billions and created thousands of 21st Century jobs in America’s heartland.

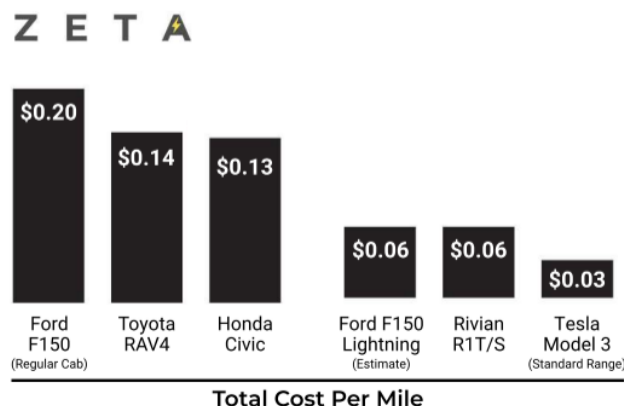
We support congressional action to create targeted incentives, increase efficiency with funding deployment and permitting, and overcome unnecessary barriers to EV adoption such as state-level dealer protection laws. We also applaud Congress for its current action to strengthen our domestic semiconductor supply, given the drag supply has had on Rivian’s production outlook along with the rest of the industry. We encourage Congress to use its bipartisan work on semiconductors as a model for addressing our domestic mineral supply chain as well. As our CEO said in a recent Wall Street Journal article, “Semiconductors are a small appetizer to what we are about to feel on battery cells over the next two decades.”¹

Outlook and Value Proposition for Battery Electric Trucks and Fleets

Demand for battery electric trucks and fleets is surging. In Rivian’s case, between individual R1T and R1S pre-orders and the Amazon fleet order—the largest commercial electric fleet order in history—we already have 180,000 deliveries to make as fast as we can.

The convergence of key trends, including shifting consumer preferences and targeted regulatory support, is contributing to the robust demand for EVs. Consumers are increasingly emphasizing sustainability in their purchasing decisions, encouraging businesses to develop sustainable solutions. Recognizing the environmental impact of increased deliveries, leading logistics and e-commerce companies are outpacing regulations in transforming their fleets. Companies such as Amazon, DHL, UPS, FedEx, and Ikea have publicly pledged to transition their delivery operations entirely to EVs to reach net zero carbon emissions in the near- to medium-term.

The business and consumer value propositions of battery electric trucks and fleets is enormous. According to Consumer Reports, the maintenance and repair savings over the lifetime of an EV compared to their gas-powered counterparts is about \$4,600.² And according to a recent study by the Zero Emission Transportation Association (ZETA), driving an EV in 2022 is 3-5 times cheaper to drive per mile than gas-powered vehicles.³



¹ Rivian CEO Warns of Looming Electric-Vehicle Battery Shortage, Wall Street Journal, April 18, 2022

² [EVs Offer Big Savings Over Traditional Gas-Powered Cars](#), Consumer Reports, October 8, 2020.

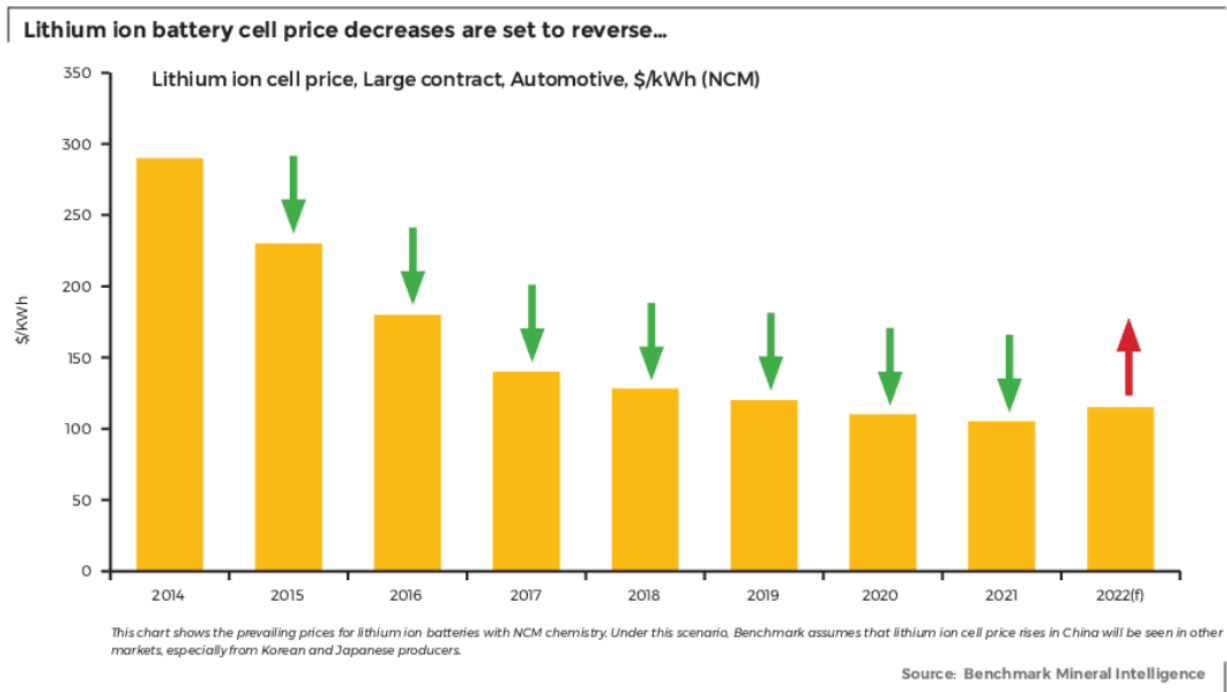
³ [Comparing the Operating Costs of Electric Vehicles and Gas-Powered Vehicles](#), Zero Emission Transportation Association, March 14, 2022.

The crisis in Ukraine and its recent impact on gas prices at home is a powerful reminder of our nation’s vulnerability to the volatile global oil market. According to AAA, gas prices have risen over 40 percent compared to last year.⁴ Electrification will deliver significant cost savings for truck and fleet owners over the lifetime of their vehicles, and free us from the unpredictable price shocks associated with the global oil market.

EV Battery Demand and Supply Chain Implications

The battery is the most important component of an EV, and a vast majority of its supply chain—its raw materials, their processed derivatives, and the assembled cells themselves—still largely exists outside U.S. borders. While the outlook is positive and the value propositions are clear, these trajectories and adoption pathways may be compromised by lack of secure access to critical materials for battery manufacturing. To put this into perspective, all the world’s current cell production capacity still represents perhaps less than 10 percent of what we will need in 10 years.⁵

The explosive global demand for EVs is already straining existing mineral supply chains. After falling nearly 90 percent over the past decade, from over \$1,200 per kilowatt hour in 2010 to \$132 in 2021,⁶ battery prices are now on the rise.⁷



⁴ [Gas Prices](#), AAA, Accessed April 14, 2022.

⁵ Rivian [CEO Warns of Looming Electric-Vehicle Battery Shortage](#), Wall Street Journal, April 18, 2022

⁶ [Battery Pack Prices Fall to an Average of \\$132/kWh, But Rising Commodity Prices Start to Bite](#), Bloomberg New Energy Finance, November 30, 2021

⁷ [Lithium ion battery prices rise for first time in Gigafactory era, automakers in negotiations](#), Benchmark Mineral Intelligence, October 29, 2021

Our business depends on the continued supply of battery cells for our vehicles. A growth in popularity of EVs without a significant expansion in domestic battery cell production capacity could result in shortages, discouraging consumers and jeopardizing our national and economic security.

The United States has the mineral resources and industrial capability to create a fully domestic battery EV supply chain, as well as world-leading environmental standards to ensure it is built and operated ethically and responsibly. There is also strong bipartisan political support for increasing existing federal investments, accelerating the deployment of funds, and removing unnecessary barriers to domestic EV adoption and battery development. These efforts will yield billions in new investment across America, create thousands of new jobs, and ensure our supply chains continue outpacing consumer demand.

Research Topics to Mitigate Supply Chain Concerns

We need an “all of the above” approach to address surging critical minerals demand, starting with increasing and expedited federal support for research into exploration, new extraction methods, alternative battery chemistries, and recycling.

As a company that relies on the mining of critical minerals for our products, we recognize our business has an upstream impact on ecosystems. Some places should have a level of permanent protection and specifically prohibit or limit harmful extractive uses. Rivian has already taken proactive stances on land conservation issues, including supporting a moratorium on deep-sea mining and committing to exclude seabed metals from our supply chain. We also support recent Biden Administration action on the Tongass National Forest Roadless Rule and the “America the Beautiful” initiative to preserve 30 percent of US land and water by 2030.

The minerals mapping programs funded by the bipartisan Infrastructure Investment and Jobs Act of 2021 will help us identify places to be protected and those that can be developed responsibly. Federal research into new methods of mineral extraction like geothermal coproduction and mine waste reclamation could reduce extraction footprints, increase renewable energy production, and possibly even help rectify the legacy of 20th Century energy and mineral development.

Our current battery architecture consists of a lithium-ion nickel-cobalt-aluminum chemistry. We are exploring new and lower cost cell chemistries and intend to optimize each battery system to address different market segments and maximize battery life and performance. In March, we announced to shareholders that we will be developing a range of new battery packs including both high nickel and lithium iron phosphate (“LFP”) chemistries to expand our available supply while reducing costs.

Given the paramount importance and impact of the battery system on vehicle range, performance, and price, federal research efforts into new battery cell chemistry development, solid-state batteries, module and pack engineering, software design, and raw material sourcing should increase and accelerate.

Key Considerations for Federal Research

Despite the gains made over the past ten years, electric vehicles still comprise less than 5% of all new car sales in the United States.⁸ More must be done to promote American electrification. Rivian strongly supports the efforts by Congress promoting new transportation technologies in such recent bipartisan bills as the Energy Policy Act of 2020 and the Infrastructure Investment and Jobs Act of 2021. These bills put meaningful investment behind efforts to promote research and development in vehicle electrification, support new and improved methods of manufacturing for this technology, and address life cycle uses of electric vehicle batteries and their components.

The bipartisan Energy Policy Act of 2020 opened new funding gates for research into strengthening our nation’s critical minerals supply chain and modernizing our electric grid.

This spirit of bipartisanship carried on with the passage of the Infrastructure Investment and Jobs Act of 2021 (IIJA), which in addition to fixing our nation’s roads and bridges, also provided:

- over \$6 billion in grants for battery materials processing, manufacturing and recycling,
- over a billion dollars for research into reclamation, recycling, and second-life applications to enhance grid infrastructure and reliability, and
- over half a billion dollars for new cross-agency mapping initiatives led by the US Geological Survey.⁹

We urge the Committee to do everything in its power in the coming years to ensure the appropriated funds for these efforts are deployed efficiently and equitably.

In addition to providing funding, the IIJA also directed federal land management agencies to look for ways to make their permitting processes run more efficiently. This must be done without compromising our nation’s bedrock environmental laws and special places.

Other Activities the Federal Government Should Pursue

The federal government can achieve ambitious electrification objectives by empowering companies to ramp production – this includes accelerating EV testing procedures, expediting and streamlining federal EV fleet requirements, and quickly providing visas for skilled workers.

Given the national, economic, and climate security risks associated with the current global mineral supply chain, the federal government must take an “all-of-the-above” approach. Federal funding for research and development is crucial, but it can do more to open pathways for domestic manufacturers to move fast in scaling up production and securing supply chains.

- **Accelerate EV Adoption.** Greater domestic demand for EVs will drive innovation and support domestic manufacturers’ efforts to onshore their supply chains. The federal consumer EV tax credit should be expanded without unnecessary limitations that hold

⁸ [Electric cars fend off supply challenges to more than double global sales](#), International Energy Agency, January 30, 2022

⁹ [Energy and Minerals Provisions in the Infrastructure Investment and Jobs Act](#), Congressional Research Service, February 16, 2022

American manufacturers back from advancing the technology. The federal government could also create exceptions to state dealership protection laws,¹⁰ which remain one of the biggest barriers to EV adoption in the US,¹¹ and avoid setting punitive EV fees.

- **Deploy federal funding in a more targeted and efficient manner.** The DOE Advanced Technology Vehicle Manufacturing loan program is well funded and expanded in scope, but it comes with administrative burdens that discourage potential applicants. The program can strike a better balance between holding loan holders accountable while also not being overly burdensome. Research grants should also be targeted to new technologies like batteries and not toward existing technology, like hybrid gasoline engines.
- **Streamline EV test procedures.** The EPA and DOT could further streamline test procedures initially created for internal combustion engine vehicles. This could include broader groupings of EVs certified in the same test group to more use of modeling in range and consumption testing.
- **Streamline federal fleet requirements for EVs.** To purchase vehicles directly from a manufacturer, federal agency fleet managers are directed to go through the General Services Administration (GSA). This process could be made more flexible, either through GSA or allowing agencies to purchase directly from a manufacturer.
- **Shore up allies and create new ones.** The United States must leverage its massive diplomatic and trade potential to further open global supply chains for both raw materials and talent. The International Development Finance Corporation could use its tools to help secure international mineral supply chains. The State Department can reinvigorate American diplomatic efforts in Asia, Africa and South America.
- **Accelerate visas for engineers who want to help build the EV industry here in the United States.** Rivian has brought together key talent from around the world, specializing in automotive and aerospace engineering, semiconductor design, consumer electronics, and cloud software. The federal government should increase efforts to help people with exceptional talent who want to build the future in America.
- **Update laws that regulate battery waste.** Congress can set standards while also maintaining flexibilities to suit the needs of a broad range of battery types, sizes, weights, applications, and users.
- **Embark on domestic mining reform.** This year marks the 150th anniversary of the 1872 Mining Law. It's time for an update. Conflict avoidance and permitting efficiency can be accomplished in a way that protects special places while still expanding our domestic resources and manufacturing capacity.

Thank you again for the opportunity to testify today. I look forward to your questions.

¹⁰ [How China Beat the US in Electric Vehicle Manufacturing](#), Issues in Science and Technology, Winter 2021.

¹¹ [The Simplest Way to Sell More Electric Cars in America](#), The Atlantic, January 21, 2022.