WRITTEN TESTIMONY OF THE NATURAL RESOURCES DEFENSE COUNCIL

on House Bill 202

by Daniel J. Sawmiller, Ohio Energy Policy Director

Before the House Transportation and Public Safety Committee

Columbus, Ohio

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Chairman Green, Vice-Chair McClain, Ranking Member Sheehy and committee members. Thank you for the opportunity to offer written testimony in support of House Bill 202, which proposes a timely and critically needed effort to prepare Ohio for the growing electric vehicle (EV) presence in the state.

House Bill 202 would establish an electric vehicle infrastructure study committee to identify a strategic plan for making investment in the state's infrastructure. This will help Ohio to prepare for and support this growing EV trend and to identify policy recommendations to support the expanded use of electric vehicles. This is a critical step that Ohio must take immediately so that Ohio will be best positioned for the ongoing market transformation taking place in the automotive sector.

Background on the EV and Battery Manufacturing Markets

While EVs currently represent a small percentage of US – and Ohio - vehicle sales, global manufacturing investment trends in the automotive industry are evidence that the transition to electric transportation is accelerating rapidly. Current projections show that the supply chain to support that transition will attract several hundred billion dollars of investment over the next several years. Ohio needs a plan to establish our state as a global leader in this market. We have too much at stake not to.

Driven by accelerating global demand, the electric vehicle (EV) supply chain is experiencing explosive growth. While 2019 saw a slowdown in overall auto sales, EV sales increased by 40 percent year-over-year with units sold surpassing 2 million globally. Projections are that annual EV sales volumes could reach 26 million by 2030.

Figure 1: Global annual passenger vehicle sales by drivetrain

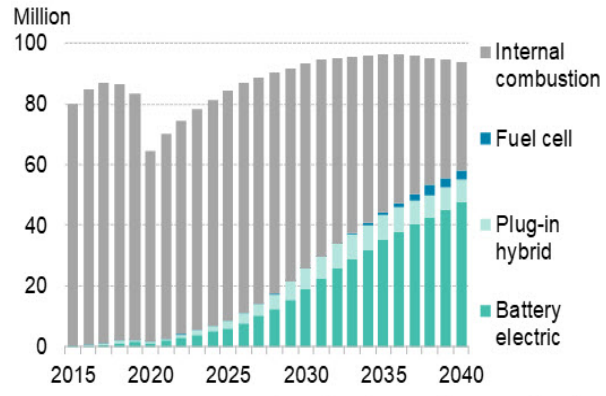
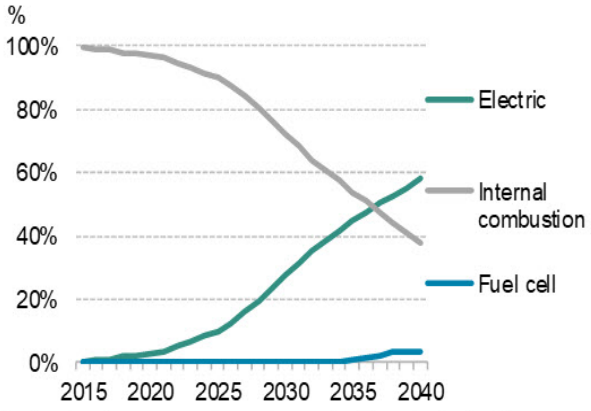
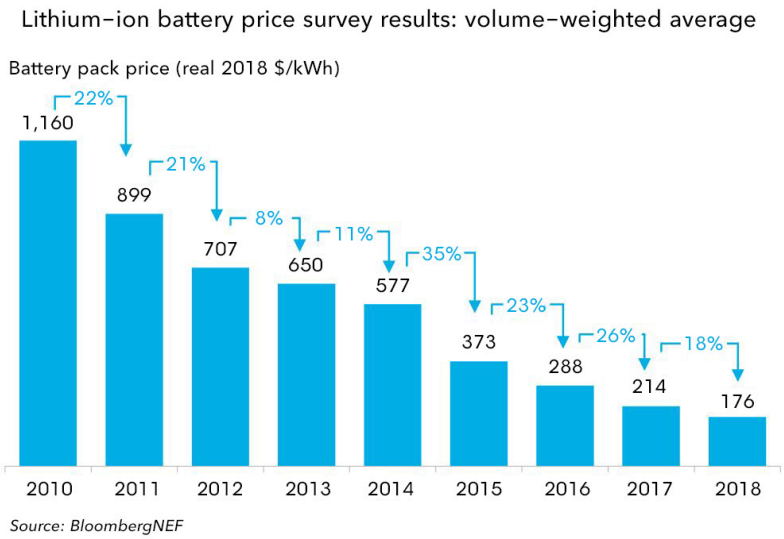


Figure 2: Global share of total annual passenger vehicle sales by drivetrain



Source: BNEF. Note: Electric share of annual sales includes battery electric and plug-in hybrid.

The competitiveness of EVs is - in significant part - the result of dramatic decreases in the price of Lithium ion (Li-ion) batteries, which can make up 40 percent of the cost of an EV. The price for Li-ion battery packs fell by nearly 90 percent between 2010-2019.

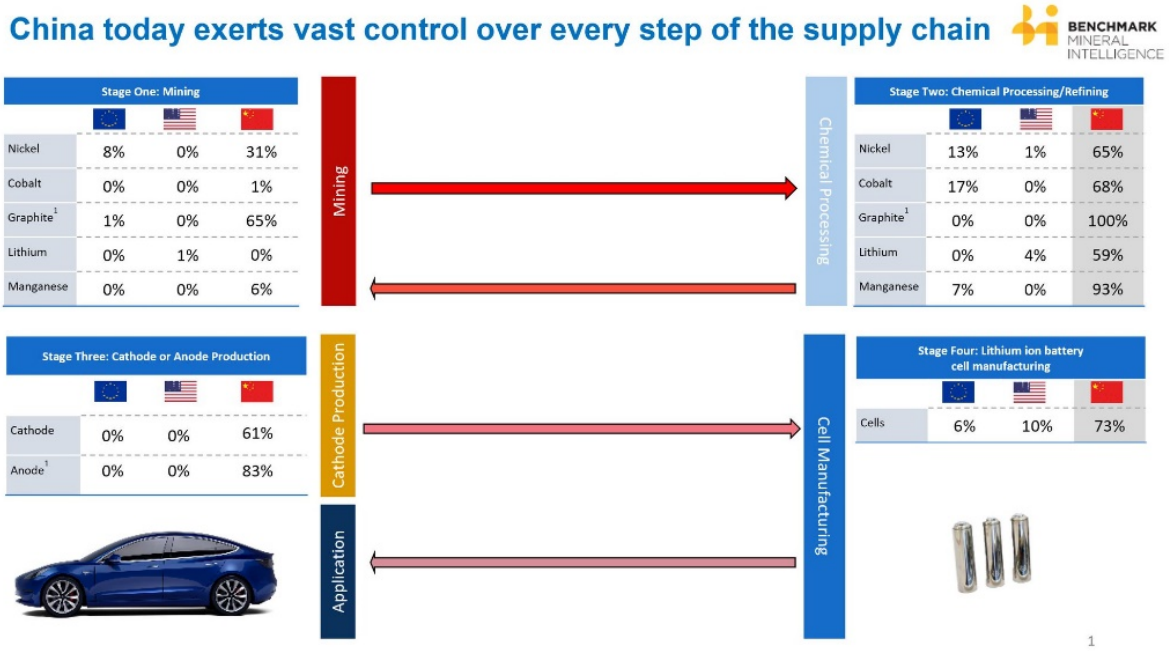


Reductions in battery prices are expected to continue accelerating EV adoption. This dynamic is already driving significant investment activity related to supply chain manufacturing capacity. Current projections are that the EV supply chain will attract several hundred billion dollars of investment over the next several years. Industry forecasts predict a compound average growth rate approaching 20 percent over the next decade.

The success of Governor DeWine, JobsOhio and other state and local leaders in attracting the GM-LG Chem battery plant to Lordstown put Ohio on the EV manufacturing map, globally. Now is the time to leverage that success and make Ohio the go-to state for supply chain investment.

Supply Chain Weakness Poses Threat to Auto Jobs

While attracting the GM-LG Chem facility was a major coup for Ohio, the US is falling behind in the global competition for EV supply chain manufacturing investment. For example, of the more than 170 battery mega-factories either in operation or under development globally, only about half a dozen are in the US. That same weakness exists throughout the supply chain from cell and component part manufacturing to chemical processing, anode and cathode production, and battery recycling.



Absent aggressive action, the US is at risk of losing the battery and EV race to Asia, Europe – and even Canada. Given the importance of the auto supply chain to Ohio's economy, we cannot afford to let that happen.

Ohio's Automotive Supply Chain

Source: JobsOhio

It is essential for the long-term health of our state's auto industry that we take aggressive steps now to attract supply chain investment. This includes the adoption of policies favorable to EV demand, making strategic infrastructure investments and signaling Ohio's interest in attracting this market to the state.

Ohio is Uniquely Positioned to Lead

In addition to the GM-LG Chem plant, Ohio is home to other key manufacturing and research and development capabilities that that state can leverage to attract EV supply chain manufacturing investment. Those include BASF Toda America LLC (BTA) which produces cathode materials for Li-ion batteries, and Dana Corporation which produces thermal management systems for Li-ion batteries and many others across the state.

Ohio also has deep experience with battery research and development at both government and university labs. Glenn Research Center is NASA's lead for electric propulsion and power and manages Li-ion battery development and deployment for the International Space Station. Air Force Research Lab at Wright Patterson Air Force Base leads research on Li-ion for military applications, including aircraft, UAV, and directed energy weapons.

Several Ohio universities are engaged in battery-related research and development (R&D). Ohio State University's Center for Automotive Research (CAR) and Energy Innovation Lab both conduct EV-related R&D in collaboration with USDOE auto and battery manufacturers. Case Western Reserve University is a Center of Excellence in energy storage research. The Center for Advanced Vehicles & Energy Systems (CAVES) at the University of Akron conducts R&D on energy management, electric drives, and inverter technology. USDOE recently awarded Wright State University a grant for research on additive manufacturing for the battery industry.

These are just a few examples of assets that, combined with our highly skilled workforce, could help Ohio attract new investment and support job creation.[1] But positioning our state as a go-to destination for the EV supply chain requires action.

Government Support for the Li-ion Industry

Government industrial policies have been key to supply chain growth globally. Electric vehicles and equipment were identified in China's 2015 "Made-in-China 2025" program.[2] As part of this initiative, China's central government and many local governments established subsidies for EVs and hybrids (note: HB546 also looks to reduce EV registration fees from currently inflated levels), exempted buyers from expensive administrative requirements and required government fleet purchases.[3]

[1] https://www.bluegreenalliance.org/wp-content/uploads/2018/09/Electric-Vehicles-At-a-Crossroads-Report-vFINAL.pdf
[2] https://www.csis.org/analysis/made-china-2025
[3] https://www.eesi.org/articles/view/comparing-u.s.-and-chinese-electric-vehicle-policies

Policies directed at strengthening domestic supply chains aren't limited to China. Over the past two years, Europe has significantly increased government support for investments in the Li-ion supply chain. It has been reported that the European Battery Alliance (EBA) has catalyzed more than $110 billion in investment in just the past two years.[4] Recent efforts by EU member states include the approval of $3.5 billion from seven countries to support battery research and innovation across the supply chain.[5] Support for EVs adoption is also a major part of COVID-recovery plans in places like France and Germany. Industry projections are now that European Li-ion battery manufacturing could increase more than tenfold from a 2019 baseline to 2023.[6]

It is well understood that government policy is crucial to stimulating supply chain investment. General Motors has stated that "[T]o compete in this global race, the U.S. government must adopt policies to promote EV battery technologies, for example… Investing in U.S.-based battery cell and battery pack manufacturing capacity."[7] Similarly, the UAW has called for a "strong, forward looking industrial policy" to promote domestic EV manufacturing."[8] But we don't have the luxury of time. Industry is moving exceptionally fast and decisions made over the next few years could define the EV manufacturing footprint for decades to come.

We need to take immediate steps to send the message that Ohio is EV-friendly. That includes an aggressive plan for investment attraction, a commitment to the infrastructure investments necessary to facilitate the transition, and demand-side EV policies that demonstrate Ohio's commitment to remain the heart of the future auto industry.

House Bill 202 and other pending pieces of legislation - such as House Bill 546 - are critical steps that Ohio must take immediately to attract the auto industry jobs of the future while making EV ownership more affordable and accessible for all Ohioans.

Conclusion

Ohio has a narrow window to establish policies that make the state competitive for domestic supply chain investment. Industry investment decisions will be made in the next few years and will cement the location – and corresponding economic benefit – of the auto supply chain for decades. Taking steps now to establish a strategic plan for EV infrastructure investment along with an execution timeline – as HB202 proposes - will assist Ohio's efforts to position itself as the destination of choice for EV supply chain investment and protect the jobs of working families around the state while making EV adoption more affordable and accessible for all Ohioans. For these reasons, NRDC urges passage of House Bill 202.

[4] https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_19_2973
[5] https://www.washingtonpost.com/world/europe/eu-approves-state-aid-to-develop-car-batteries-industry/2019/12/09/b2ef7914-1a83-11ea-977a-15a6710ed6da_story.html
[6] https://www.greentechmedia.com/articles/read/europe-set-to-race-past-us-in-battery-manufacturing#gs.sx636b
[7] General Motors Comments to NHTSA, October 26, 2018
[8] *Taking the High Road*, United Auto Workers, Spring 2019