

**Electric Vehicle  
Product Commission**

# Executive Summary

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September 26, 2023

# The Automotive Industry: Supercharged

The automotive industry in Indiana is a dynamic, dense, and connective pulse of innovation rooted in generations of Hoosiers. Anchored by research, education, and training from world-class universities and colleges, the automotive industry's strength lies in its most remarkable tradition: modernization. With this foundation, the Electric Vehicle Production (EVP) Commission is taking the lead in supporting the growth and attraction of innovation assets, companies, and talent toward the successful transition from Internal Combustion (ICE) engine-based cars to battery-powered Electric Vehicles (EV).

The automotive industry initiated the beginning of a technical revolution in Indiana by cultivating research and

pioneering products over the course of many decades. Although the local automotive industry boom has grown immensely recently, Hoosier leaders have been developing the culture of innovation tediously with substantial attention to detail and rising trends.

Since 1909, Indiana has grown its automotive manufacturing operations **13 facilities, 32,600 careers, and more than 24 million square feet** of facility space. Additionally, **\$1.9 Billion in total state tax revenue**<sup>1</sup> is generated by the automotive industry. The momentum of investment and growth in the automotive industry has only kept growing, and the EVP Commission is providing a roadmap to accelerate the industry's success.

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<sup>1</sup>[\*Alliance for Automove Innovation\*](#)

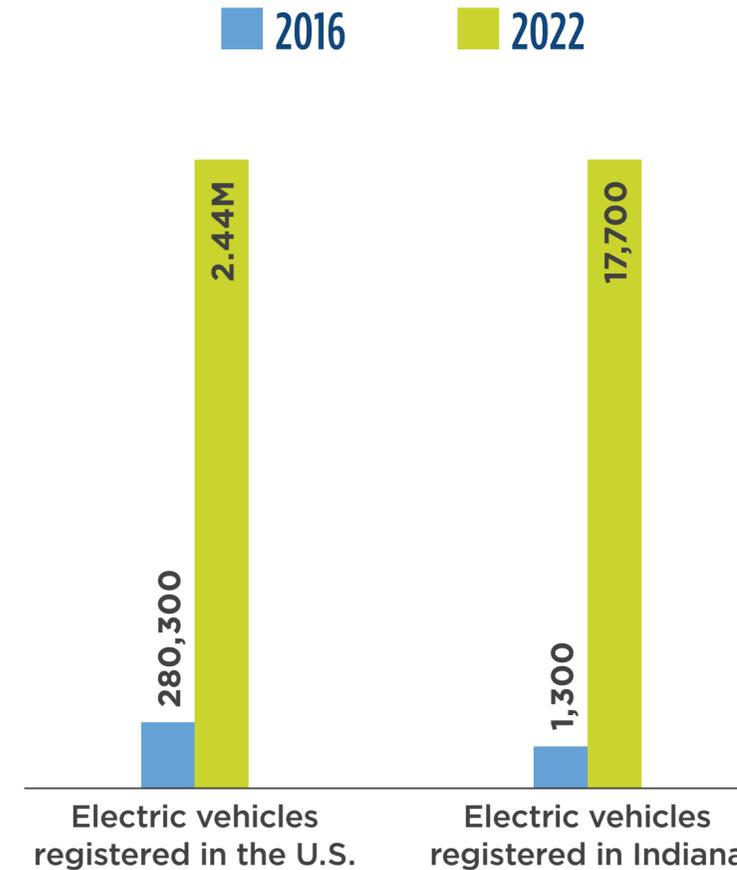
## The Importance of Electric Vehicles to Economic Development

Like any transformative new technology, electric vehicles create a variety of potent economic development challenges and opportunities. While the electric vehicle market is evolving, it is clear that it will reshape industries and communities all over the world. World-class research and development, as well as a variety of partnerships and talented individuals, work together to make Indiana the perfect environment for emerging industries like the electric vehicle production industry.

The automotive industry is transitioning - replacing the Internal Combustion (ICE) engine-based cars with a new energy source - battery-powered Electric Vehicles (EV). Based on research from PWC, the number of EVs in the US is estimated to be 27 million by 2030 and 92 million by 2040. Additionally, the electric vehicle supply equipment (EVSE) market could grow from \$7 billion today to \$100 billion by 2040 at a 15% annual growth rate.<sup>2</sup>

Furthermore, Indiana stands at the crossroads of attracting a large share of this growth as it develops its robust supply chain and top echelon of automotive talent.

<sup>2</sup>[PWC Electric Vehicle Charging Market Analysis](#)



The count of EVs per 10,000 people has risen from 9 to 73 in the U.S. during the same period while it has increased from 2 to 26 in Indiana. This translates to a growth of **711.1%** in the U.S. and Indiana experienced an astounding increase of **1,200%**.<sup>3</sup>

Source: Alternative Fuels Data Center, administered by the U.S. Department of Energy

<sup>3</sup>[https://afdc.energy.gov/transatlas/#/?state=IN&view=per\\_capita.%20FHWA](https://afdc.energy.gov/transatlas/#/?state=IN&view=per_capita.%20FHWA)

## What is the EV battery supply chain?

This shift from ICE to EV is forecasted to have a corresponding decrease in the volumes of ICE and will impact the automotive industry supply chain. The term supply chain describes the process by which a product is made and delivered to a consumer. The steps involved in producing and using an EV battery fall into four general categories:

**Upstream:** Mines extract raw materials; for batteries, these raw materials typically contain lithium, cobalt, manganese, nickel, and graphite.

**Midstream:** Processors and refiners purify the raw materials, then use them to create cathode and anode active battery materials; commodities traders buy and sell raw materials to firms that produce battery cells.

**Downstream:** Battery manufacturers assemble the battery cells into modules and then pack and sell them to automakers, who place the finished batteries in EVs. Some automakers like Ford and Stellantis have formed partnerships with battery manufacturers to produce their own batteries for the vehicles they sell.

**End of Life:** When batteries no longer serve their original purpose, they can be repurposed or recycled.

*Source: Purdue University*

## The Prioritization of the ICE and EV Supply Chain

The ICE and EV ecosystem is experiencing a transformation in partnerships among the key players as OEMs accelerate their capabilities while carefully weighing the needs of capital investment and technology competencies.

As the transition continues to occur, risks with supply chain disruption within the ecosystem are veritable, first starting with the COVID-19 pandemic, semiconductor shortages, labor and logistics obstacles, and political-economic turmoil with the war in Ukraine. These factors have placed a heavier emphasis on a stable and competitive regional supply of lithium-ion batteries and materials.<sup>4</sup>

### Opportunities

Those who succeed in the emerging battery sector and EV race will depend on commanding a well-managed, agile, flexible, multi-sourced, and resilient supply chain. Additionally, localizing the EV battery supply chain can bring upstream investment opportunities due to batteries requiring critical minerals, processing facilities, and component manufacturing. Since the passing of the Inflation Reduction Act, more than \$40 billion of new capital investment has been introduced across the U.S. battery supply chain creating a rippled effect of economic development in related industries, enabling offshoot entrepreneurship, and advancing industry cluster development that improves productivity and growth.<sup>5</sup>

Furthermore, many of the jobs that will be created in the next five to 10 years do not exist today. Of the existing jobs that will remain, most will be altered in some way by the new technology. The challenge is to identify which blend of global trends and Indiana assets will offer the right platform to amplify the industry of the future. Yet, Indiana is taking the lead in leveraging public and private investment to help Indiana's communities at high risk for impact. The EV Product Commission is leading the way in identifying the obstacles and creating solutions that are comprehensive and systematic to automotive manufacturers and suppliers.

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<sup>4</sup>[\*Automotive battery manufacturing and supply chain 2022: Risks, regulation and resiliency\*](#)

<sup>5</sup>[\*Alessandra R. Carreon, "The EV Battery Supply Chain Explained," May 5, 2023, Rocky Mountain Institute\*](#)

**“The speed and detailed coordination between various stakeholders in the transition to EV manufacturing and sales is amazing to see how it has unfolded.”**

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**State Senator Jim Buck**



## Electric Vehicle Product Commission

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