



NORTH CAROLINA

DRIVING THE FUTURE OF THE
AUTOMOTIVE INDUSTRY



WE CHOSE NORTH CAROLINA FOR SEVERAL REASONS, INCLUDING ITS EXTENSIVE AND WELL-MAINTAINED INFRASTRUCTURE, FOUR INTERNATIONAL AIRPORTS AND TWO SEAPORTS, ITS CONSISTENT RANKING AS ONE OF THE TOP STATES TO DO BUSINESS, ITS WORLD-CLASS EDUCATION SYSTEM AND, IMPORTANTLY, ITS OUTSTANDING AND DIVERSE WORKFORCE.



Christopher P. Reynolds,
Executive Vice President, Corporate Resources, Toyota Motor North America



NORTH CAROLINA:

WHERE AUTOMOTIVE INNOVATION ACCELERATES

POWERING THE FUTURE

20

TOP SUPPLIERS

Twenty of the top 100 global Original Equipment Manufacturer (OEM) automotive parts suppliers have operations in North Carolina. The state's robust supplier network, which includes Denso, Bharat Forge, and Celgard, is one reason leading automobile companies locate here.

30%

GROWTH

Backed by an expanding cluster of automotive companies, employment in this sector has surged since 2011. With the largest manufacturing workforce in the Southeast, it's easy to find the skilled workers your company needs.

250+

**AUTOMOTIVE
COMPANIES**

North Carolina is home to over 250 unique automotive companies, including heavy-duty truck, body and trailer, engine and transmission, seating and interior trim, brake system manufacturing, and electric vehicle and battery manufacturing.

26K+

EMPLOYEES

More than 26,000 people work directly in North Carolina's automotive sector. Beyond direct employment, hundreds of thousands of North Carolinians work in occupations that have transferable skill sets for the industry.

TALENT & LABOR

North Carolina has 52 colleges and universities, including three Tier 1 research universities: NC State University (NCSU), Duke University, and the University of North Carolina at Chapel Hill. The state also has 58 community colleges. During the 2020-21 academic year, the state's colleges and universities conferred over 5,153 advanced engineering degrees, and our community colleges and trade schools conferred over 1,852 automotive mechanics technology degrees and certificates, ranking North Carolina among the top five states in the nation for completions in these programs.

GROWING NORTH CAROLINA'S PIPELINE OF ENGINEERS

In recognition of the surging demand for STEM talent, the North Carolina General Assembly appropriated funds in 2021 via the Engineering North Carolina's Future initiative to grow the engineering talent pool in-state. As part of this funding initiative, the following awards have been announced:

- **NC State University** will receive \$20 million to add 4,000 new engineering students and hire 100 supporting faculty. In 2021 alone, the university declined to admit 1,400 undergraduate engineering applicants with GPAs of 3.75 (unweighted) or higher due to lack of faculty and space. In addition, the university received another \$30 million to upgrade facilities that will accommodate the added students.
- **NC A&T University** will receive \$35 million to recruit and retain undergraduate and graduate students, to create four new advanced engineering laboratories, and to expand facilities in the joint engineering and nanoscience school.
- **University of North Carolina at Charlotte (UNC Charlotte)** will receive \$41.2 million to create engineering and STEM facilities, develop computational engineering and cybersecurity/data science programs, recruit 20 new faculty members, and add an additional 2,000 students.

OCCUPATIONS AND JOB GROWTH

Occupation	NC 2022 Jobs	NC Job Growth (2013 - 2022)	NC Median Annual Earnings (% Below National Average)
Miscellaneous Assemblers and Fabricators	51,532	0%	\$30,888.00 (16%)
Electrical Engineers	5,499	17%	\$99,798.40 (1%)
Industrial Engineers	9,117	23%	\$81,369.60 (15%)
Mechanical Engineers	8,549	29%	\$79,580.80 (16%)
Industrial Production Managers	6,874	39%	\$99,340.80 (4%)
Welders, Cutters, Solderers, and Brazers	12,631	45%	\$46,446.40 (1%)
Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	3,733	77%	\$36,587.20 (3%)

Source: Lightcast Q1 2023 Data Set

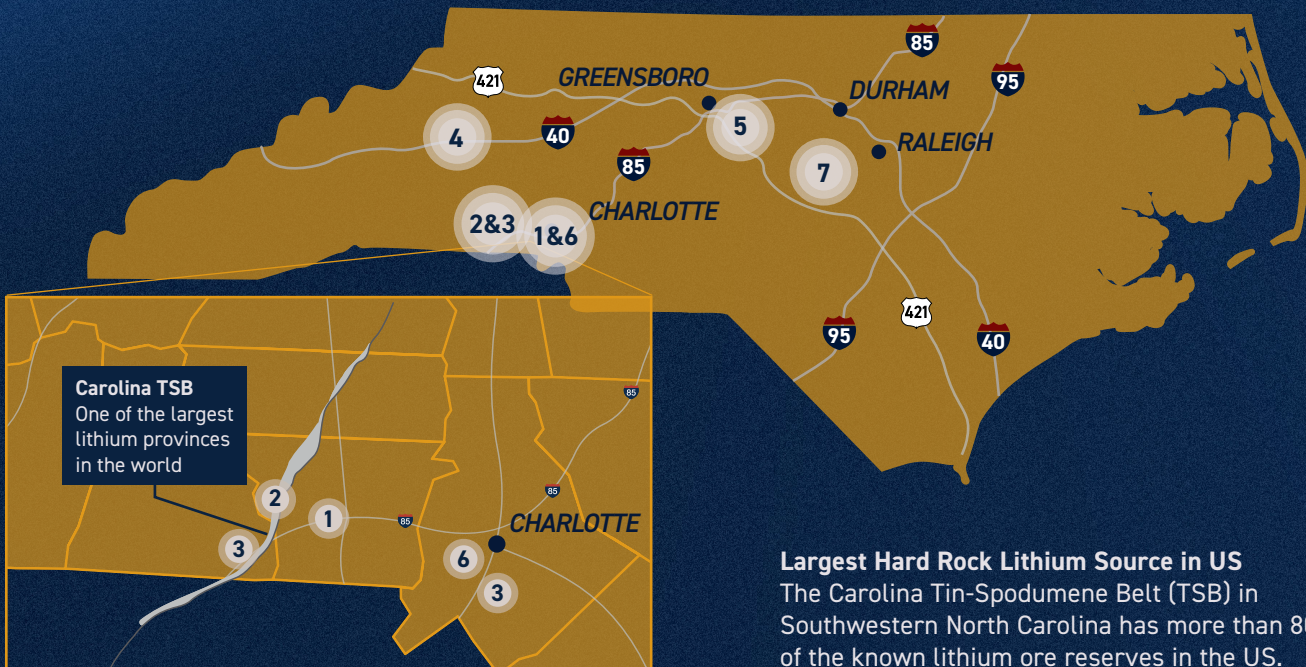
NORTH CAROLINA'S EV ADVANTAGE

North Carolina is a leader in the nation's rapidly growing electric vehicle (EV) sector:

- Our central, East Coast location is near all phases of the EV supply chain, including raw materials, battery manufacturers, and battery customers.
- Recently announced investments in the state by Toyota, VinFast, Albemarle Corporation, and Arrival total over \$8 billion, proving North Carolina is a top choice for EV operators.
- The state is home to Wolfspeed, which produces more than 60% of the critical component silicon carbide (SiC) for EV chips. Wolfspeed recently announced plans to invest \$5 billion to build its newest semiconductor manufacturing plant in North Carolina.
- In 2020, Duke Energy received approval for a North Carolina EV pilot program, the largest utility EV investment ever in the Southeast. As of 2022, the state expects to receive \$109 million under the Bipartisan Infrastructure Law to further build out the state's EV infrastructure.
- In 2021, Energy Solutions for North Carolina (House Bill 951) was passed which directs Duke Energy to cut power sector carbon emissions 70% by 2030 and reach carbon neutrality by 2050 using least-cost methods and without sacrificing reliability. The following year Executive Order 246 set goals to further reduce GHG emissions in the transportation sector and increase the number of electric vehicles on the road in North Carolina to 1,250,000 by 2030.

NORTH CAROLINA INTEGRATED EV SUPPLY CHAIN

Raw Material Supplier	Battery Manufacturer	Battery and EV Manufacturer
1. Piedmont Lithium	5. Toyota	6. Arrival
2. Livent		7. VinFast
3. Albemarle		
4. SGL Carbon		



NORTH CAROLINA: THE BEDROCK OF CLEAN ENERGY



HOME TO LARGEST HARD ROCK LITHIUM (SPODUMENE) RESOURCE IN THE US

- The Kings Mountain Mining District in North Carolina is the largest known and highest quality spodumene (aka hard rock lithium) deposit in the US.
- North Carolina's Lithium Belt is a historic lithium mining and producing region in the US.



GLOBAL HEADQUARTERS FOR TOP LITHIUM COMPANIES

- Several of the world's top lithium providers call North Carolina home. Companies include: Piedmont Lithium, Albemarle, Livent and Center for Lithium Energy Advanced Research (CLEAR).
- These companies are actively evaluating the potential to restart mining operations in North Carolina and are either expanding their current lithium processing capabilities or have plans to build out new capacities in the next few years.
- The presence of these companies along with North Carolina's history in lithium means North Carolina has one of the largest concentrations of advanced lithium processing experts outside of China.



PROXIMITY TO IMPORTANT SUPPLY CHAIN COMPONENTS AND CUSTOMERS

- As a top source of spodumene and producer of lithium hydroxide, North Carolina has the ability to contribute to all four steps in the supply chain, eliminating the need to ship abroad mid-process.
- North Carolina's strategic, east coast location and two deep-water seaports with on-dock rail offer easy access to domestic and international markets. North Carolina companies also enjoy easy access to the Port of Norfolk and the Port of Charleston.
- North Carolina is home to 20 of the top 100 global OEM automotive parts suppliers in the US, 267 automotive companies and has an automotive industry that is growing at 30%.

INDUSTRY LEADERS CHOOSE NORTH CAROLINA

AFFIVAL

BRIDGESTONE

DAIMLER



TOYOTA

VINFAST

BorgWarner

CATERPILLAR



GOODYEAR

Thomas
BUILT BUSES



INDUSTRY RESOURCES

North Carolina has many programs and research centers that support automotive businesses:

NCWorks is a free job screening, recruiting, and training program for new and expanding businesses. In FY 2021-2022, the NCWorks Customized Training Program trained more than 22,000 employees from over 550 companies across the state, including GKN Driveline and Clairios. As part of the Customized Training Program, community colleges and businesses work together to curate customized curricula and technical training to fulfill each business's workforce needs.

Polymers Center of Excellence works in the plastics industry to increase knowledge, provide technical support, and assist in the development of emerging technologies.

The North Carolina Manufacturing Alliance (NCMA) is a non-profit association representing the interests of North Carolina manufacturing industries before the North Carolina General Assembly and state regulatory agencies on environmental, health, safety, energy, worker's compensation, and tax issues.

The Center for Lithium Energy Advanced Research (CLEAR Lab) at Livent is dedicated to finding and testing new ways to improve energy storage. Partners conduct advanced materials research focused on energy storage and battery systems.

The North Carolina Clean Energy Technology Center (NCCETC) at NC State University promotes the sustainable energy economy by providing support for clean energy technologies, practices, and policies. NCCETC's Clean Transportation program is focused on driving the development, awareness, and use of alternative fuels and advanced transportation technologies.

The NC Motorsports and Automotive Research Center (NCMARC) at UNC Charlotte specializes in vehicle dynamics, aerodynamics, instrumentation, safety, and metrology, and has developed more than \$2.25 million in external research related to these technologies.

NCMARC is currently transitioning into the Battery Complexity, Autonomous Vehicles, and Electrification (BATT CAVE) Research Center. The research center will be the first in the UNC System with full dedication to the next generation of the automotive industry and will focus on the emerging research areas of batteries, electric vehicles, and autonomous vehicles.



ECONOMIC
DEVELOPMENT
PARTNERSHIP of
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