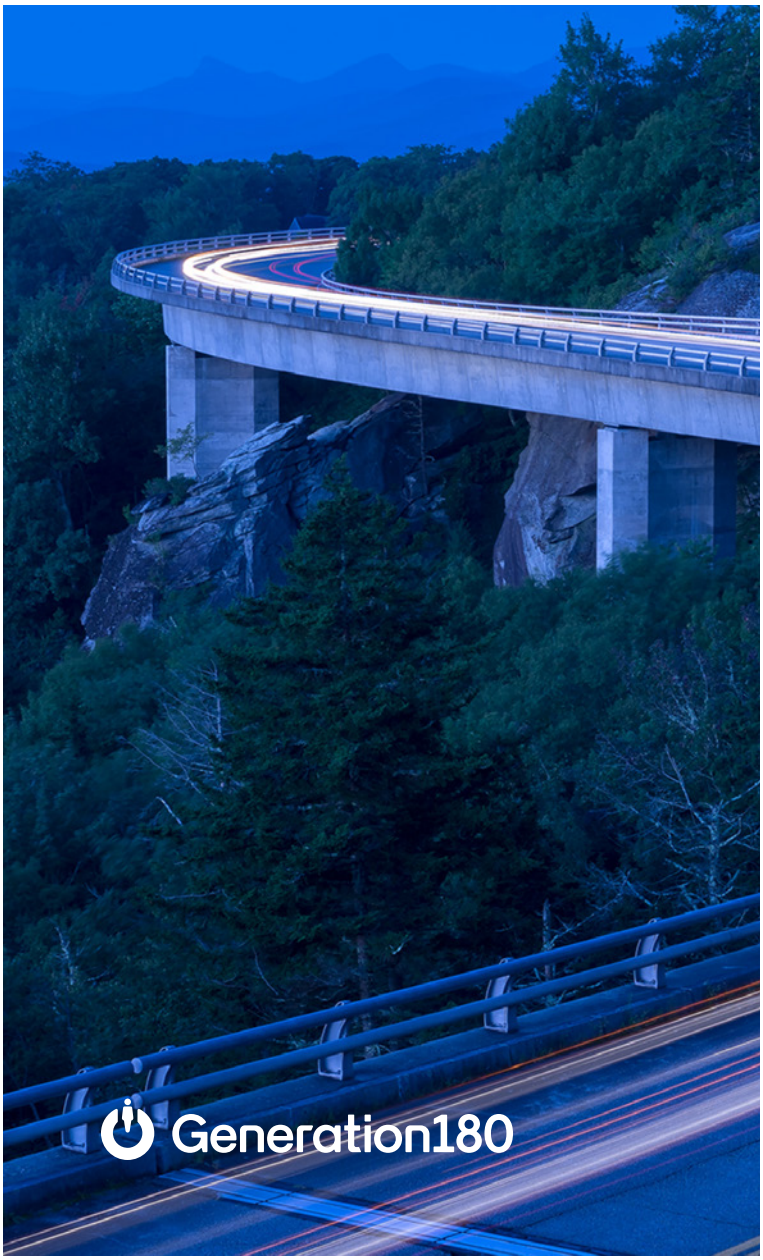
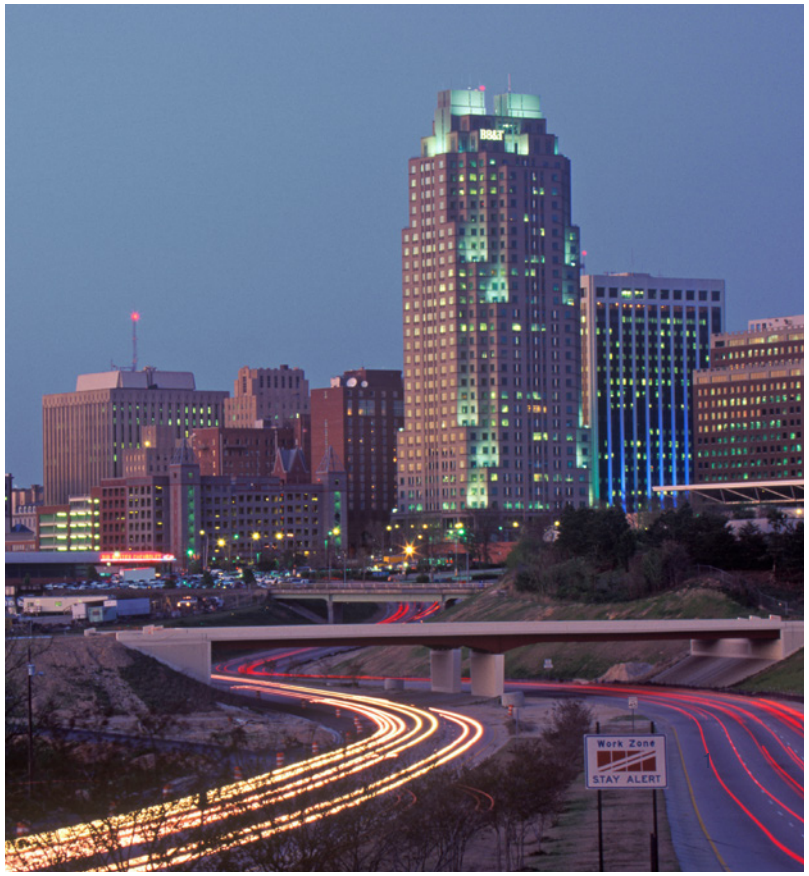
North Carolina Drives Electric 2022

Strong Consumer Demand Highlights Electric Vehicles as an Economic Driver

Report by Generation180





ABOUT GENERATION180

Generation180 is a non-profit organization working to inspire and equip individuals to take action on clean energy.

At Generation180, we envision a 180-degree shift in our energy sources – from fossil fuels to clean energy – driven by a shift in people's perception of their role in making it happen – from apathy to agency, from despondency to determination, from hopeless to hopeful.

A world powered by wind, water, and sun is not only possible – it's already happening. We have both the technology and the expertise. Now we need Americans to embrace renewable energy in order to speed up this transition to a healthier, more equitable clean energy future. Generation180 is changing the narrative around energy and equipping people to take effective, meaningful action in their homes and communities.

Sign the "Going Electric" Pledge →

ACKNOWLEDGMENTS

Generation180 would like to thank the many individuals and organizations that contributed to the *North Carolina Drives Electric 2022* report, including Dynata and contract editor Julie Robinson of Robinson Consulting Group. Thanks also go to the entire Generation180 team for their hard work and dedication to this project.

In addition, we extend a special thank you to the organizations listed below that have demonstrated their support for transportation electrification across North Carolina and beyond.

Electrification Coalition

clean AIRE nc

cleanenergy.org Southern Alliance for Clean Energy

Plug-in nc

NC SUSTAINABLE ENERGY ASSOCIATION

North Carolina Conservation Network

SEEA SOUTHEAST ENERGY EFFICIENCY ALLIANCE

A LETTER FROM GENERATION180

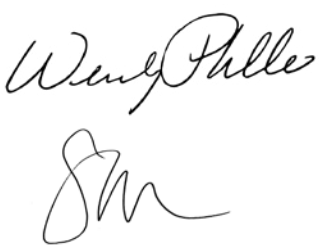
At Generation180, we are working to inspire and equip individuals to take action on clean energy and accelerate the arrival of a healthier, cleaner, more prosperous future. Our nation is at a tipping point in the clean energy transition. Public support for renewable energy and energy efficiency technologies is high across the political spectrum. Red states and blue states across the country are increasingly taking advantage of high-quality, carbon-free energy technologies that benefit their citizens, communities, and economies. This trend will be further accelerated by recent state policy actions and the historic investments in clean energy through federal legislation like the Infrastructure Investment and Jobs Act and the Inflation Reduction Act.

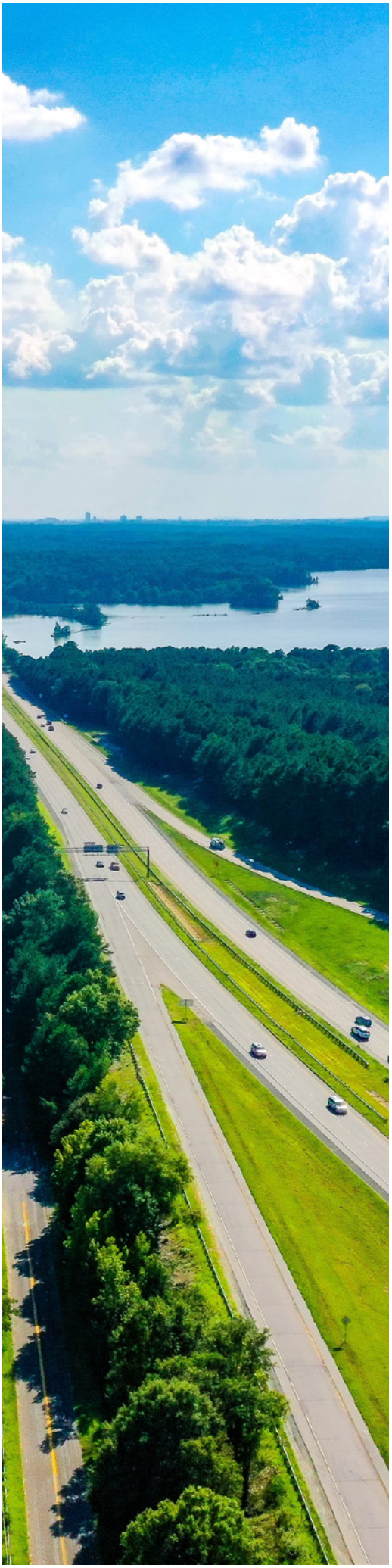
Similarly, North Carolina now has an unparalleled opportunity to benefit from clean electric transportation. In 2021, state legislators and Governor Roy Cooper took important steps toward reducing emissions at power plants via passage of House Bill 951. However, this legislation did not address emissions from the transportation sector, which is the state's top pollution source. Through executive actions, Governor Cooper has set much-needed goals to increase the availability of electric vehicle (EV) choices for residents and businesses, but additional legislative action is needed.

New investments in EV manufacturing in North Carolina will bring new jobs to the state and boost the local economy. And as our new consumer survey finds – detailed in this report – the majority of North Carolina residents support EVs and want to enjoy the benefits that neighboring states are already experiencing in terms of more consumer EV choices, greater energy independence, cleaner air, and thousands of new jobs – and not be left behind.

As a non-profit organization working to support state and national efforts to hasten the clean energy transition, Generation180 has prepared the *North Carolina Drives Electric 2022* report to help provide North Carolina leaders, advocates, and engaged community members with a "state of the state" of electric transportation. We hope that this detailed look at the benefits and barriers to electrifying transportation will support decision-making and advocacy efforts and accelerate the arrival of a clean and electrified energy economy that will benefit all North Carolinians.

Sincerely,
Wendy Philleo, Stuart Gardner, and the Generation180 Team





EXECUTIVE SUMMARY

The *North Carolina Drives Electric* report provides a "state of the state" of electric vehicles for policymakers, advocates, and engaged citizens. In addition to leveraging existing data to inform the report's conclusions, Generation180 conducted a representative statewide consumer survey on transportation electrification and North Carolina's transition to a clean energy economy. The findings indicate that North Carolinians are overwhelmingly in favor of clean energy, electric mobility, and programs that accelerate the adoption of EVs in communities across the state.

North Carolinians purchased over 5.6 billion gallons of imported gasoline, in 2021[1] and the transportation sector is the state's largest source of carbon dioxide emissions. Yet, as the 9th largest state in the United States with 10.6 million people, North Carolina is already 10th in the nation for EV sales.[2]

In 2021, the N.C. General Assembly and Governor Roy Cooper took important steps toward reducing power plant emissions by enacting House Bill 951 (SL 2021-165), "Energy Solutions for North Carolina." The governor has also taken several administrative actions, including issuing Executive Order 246, "North Carolina's Transformation to a Clean, Equitable Economy," in January 2022. This action directs the N.C. Department of Transportation to create a Clean Transportation Plan, increases the state's goal for registered zero-emission vehicles (ZEVs) to at least 1,250,000 by 2030, and increases the goal for the sale of ZEVs to 50 percent of in-state new vehicle sales by 2030. However, additional action is needed to fully address pollution from the transportation sector and to ensure that these goals are achieved.

While transforming the state's transportation sector is a daunting task, North Carolina has an incredible opportunity to lead in the U.S. clean energy transition and to transform the state's outdated and costly gasoline-powered transportation sector into a cleaner, electrified, more equitable system – while also creating thousands of high-tech manufacturing jobs.

Now is the time for the N.C. General Assembly, Governor Cooper's administration, the N.C. Utilities Commission, utilities, local governments, the private sector, and others to support an equitable transition to electric transportation in line with the state's long-term carbon reduction requirements.

TABLE OF CONTENTS

02 Acknowledgments

03 A Letter from Generation180

04 Executive Summary

05 Introduction

07 Key Findings

09 Why EVs Matter to North Carolina
10 The Case for EVs: Energy Security, Employment, Emissions
11 EVs Are a Boost to North Carolina's Economy
13 EVs Cost Less Over Time and Are More Reliable Than Traditional Cars
14 Transportation: Economic Impacts for North Carolinians
15 Transportation and Rural Communities

16 Current Landscape
18 North Carolina's EV Footprint
19 EV Growth in North Carolina
20 U.S. Southeast: Growth of EV Sales 2012-2021

21 Barriers to EV Adoption
22 Lack of Available Models and Inventory
23 High Upfront Costs, But Greater Long-Term Savings
24 Limited Access to Charging Infrastructure

26 Policy Matters
27 North Carolina's Electric Transportation Executive and Legislative Actions
28 Federal and State Policies

29 Conclusion

30 Reference Guides

34 Appendix

37 Endnotes

The past two years have put North Carolina on the map for clean energy leadership – in a strong, bipartisan way.

In October 2021, the Republican-led North Carolina General Assembly overwhelmingly passed House Bill 951, "Energy Solutions for North Carolina," and Gov. Roy Cooper signed it into law. The legislation requires utilities to reduce carbon emissions at power plants 70 percent by 2030 and to achieve carbon neutrality by 2050.

While North Carolina has begun to tackle and reduce carbon emissions from electricity generation within its borders, it has yet to formally address the largest source of carbon emissions from the state's transportation sector.

PICTURED L TO R:
SENATE PRESIDENT PRO TEMPORE
PHIL BERGER
(R-ROCKINGHAM)

HOUSE MINORITY LEADER
ROBERT REIVES
(D-CHATHAM)

GOVERNOR OF NORTH CAROLINA
ROY COOPER

HOUSE SPEAKER
TIM MOORE
(R-CLEVELAND)

SENATE MINORITY LEADER
DAN BLUE (D-WAKE)

SOURCE: OFFICE OF GOV. ROY COOPER

KEY FINDINGS

The transportation sector is North Carolina's largest source of carbon emissions and represents a significant opportunity for the state to continue playing a leading role in our country's transition to clean energy.

To tackle statewide emissions, North Carolina must modernize transportation across the board, shifting to cleaner and more equitable ways of getting around. While solutions should go beyond just personal vehicle ownership and also include public transit and community design, we must transition from existing gasoline-powered internal combustion engines (ICE) to more efficient, electrified forms of mobility. Electric vehicles (EVs) can provide significant reductions in transportation emissions and can yield immediate economic, health, and climate benefits for all North Carolinians.

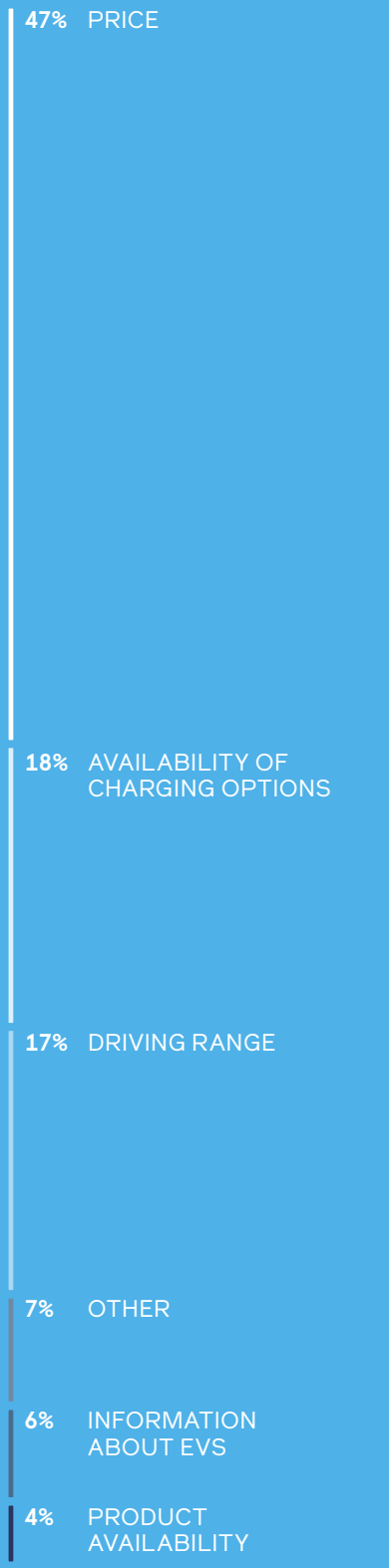
In October 2021, the Republican-led North Carolina General Assembly overwhelmingly passed House Bill 951 (SL 2021-165), "Energy Solutions for North Carolina,"[3] and Gov. Roy Cooper signed it into law. The legislation requires utilities to reduce carbon emissions at power plants 70 percent by 2030 and to achieve carbon neutrality by 2050. During his two terms in office, Governor Cooper has also signed several Executive Orders on clean energy and transportation.

Now, stakeholders across the state – including legislators, Governor Cooper's administration, the N.C. Utilities Commission, utilities, local governments, the private sector, and others – must support an equitable transition to electric transportation that is in line with the state's long-term carbon reduction requirements. They must also work to accelerate the adoption rate of EVs across the state.

The more North Carolinians transition to electric vehicles, the more the state will benefit. From reduced greenhouse gas emissions and decreased dependency on foreign oil, to better air quality and the creation of thousands of new local jobs, and much-needed investments in local communities – transitioning to EVs is good for both state residents and the economy as a whole.

In a 2022 consumer survey, 52% of North Carolinians said they were likely or very likely to consider an EV for their next car.

What is the greatest barrier to you in considering an electric vehicle?*



*BASE NUMBER OF RESPONDETS =1,010 RESPONDENTS WHO DO NOT CURRENTLY OWN/LEASE ELECTRIC VEHICLE OR PLUG-IN HYBRID VEHICLE

2022 NC CONSUMER SURVEY: KEY FINDINGS

Over half of North Carolinians are likely to consider an EV for their next car. 52% responded "somewhat likely" or "very likely" when asked how likely they would be to consider an EV for their next vehicle.

Nearly two-thirds of North Carolinians have a positive view of electric vehicles. When asked, "Given what you know, what is your perception of EVs?", 65% responded as having a "somewhat positive" or "very positive" view of EVs.

Savings on maintenance and fuel costs is the biggest motivator to purchase an EV. Of the benefits presented, "savings on gasoline costs" ranked #1, with 75% of respondents reporting that it would make them "much more" or "somewhat more" likely to purchase an EV. "Ability to charge at home" (71%) and "access to public charging stations" (68%) also ranked as top factors respondents consider when thinking about purchasing an EV.

The higher upfront cost of electric vehicles remains a barrier. 45% of respondents answered that the higher upfront purchase cost makes them "much less likely" or "somewhat less likely" to go electric. Conversely, 73% of respondents answered that access to discounts or incentives would make them "somewhat more likely" or "much more likely" to purchase an EV.

Nearly three-quarters of North Carolinians support state-level EV incentives. 69% of respondents "strongly support" or "support" North Carolina offering an EV incentive for individuals buying or leasing an EV.

58% of respondents "strongly support" or "support" North Carolina enacting a state policy that would require auto manufacturers to provide a minimum number of new electric vehicles for sale in North Carolina, and to gradually increase the number each year, making more models of EVs accessible to North Carolina consumers.

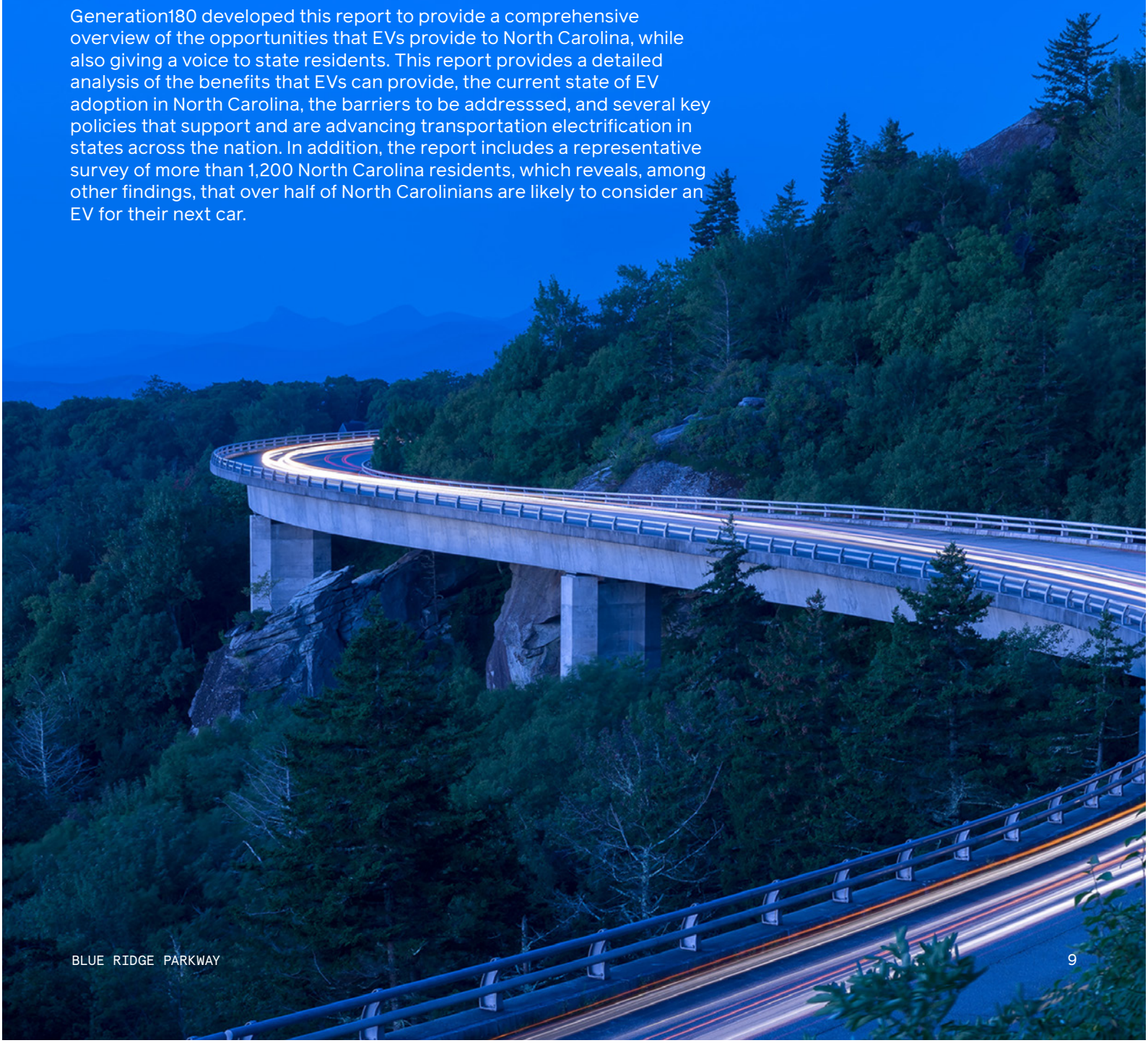
Support for North Carolina's transition from fossil fuels to clean energy is strong. When asked, "How important is it to you that North Carolina reduce its independence on fossil fuels and transition to clean energy?", 67% of respondents said it was "somewhat important" or "very important."

THE 2022 NORTH CAROLINA CONSUMER SENTIMENT SURVEY QUESTIONS AND RESULTS ARE INCLUDED IN THE APPENDIX.

Why EVs Matter to North Carolina

As North Carolina transitions to a 21st-century clean energy economy, electric vehicles will play an important role in achieving many of the state's clean energy, climate resilience, economic, and public health goals.

Generation180 developed this report to provide a comprehensive overview of the opportunities that EVs provide to North Carolina, while also giving a voice to state residents. This report provides a detailed analysis of the benefits that EVs can provide, the current state of EV adoption in North Carolina, the barriers to be addresssed, and several key policies that support and are advancing transportation electrification in states across the nation. In addition, the report includes a representative survey of more than 1,200 North Carolina residents, which reveals, among other findings, that over half of North Carolinians are likely to consider an EV for their next car.



BLUE RIDGE PARKWAY

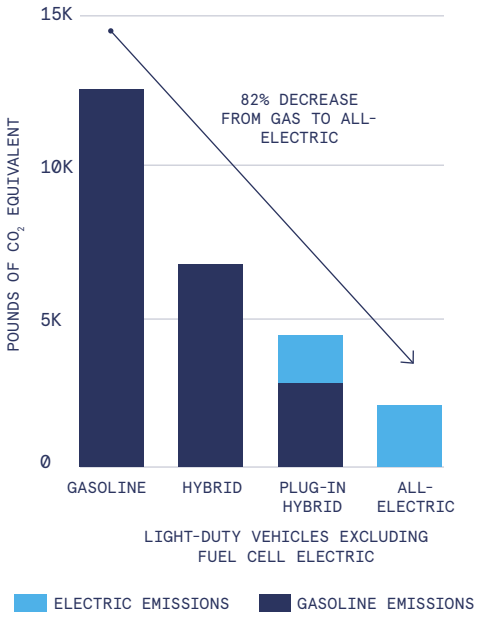
THE CASE FOR EVS: ENERGY SECURITY, EMPLOYMENT, EMISSIONS

In 2021, the United States consumed 19.8 million barrels[4] of petroleum per day – the most of any nation in the world and 30 percent more than second-place China.[5] Nearly two-thirds of this petroleum is used in our transportation sector,[6] with 43 percent being imported from more than 70 different countries.[7] Some of these countries manipulate the global oil market through unpredictable and anti-competitive behavior.

Additionally, the greenhouse gases emitted on American roads make up the largest portion of all U.S. emissions (29 percent), with passenger cars and light-duty trucks contributing most of the total.[8] North Carolina's transportation sector accounts for 36 percent of the state's gross greenhouse gas emissions and is projected to reduce emissions at a much lower rate compared to reductions in the power sector by 2030. Transportation-related emissions include not only carbon dioxide, but also other greenhouse gases such as methane, nitrous oxide, and hydrofluorocarbons, which can have even greater impacts on our climate.

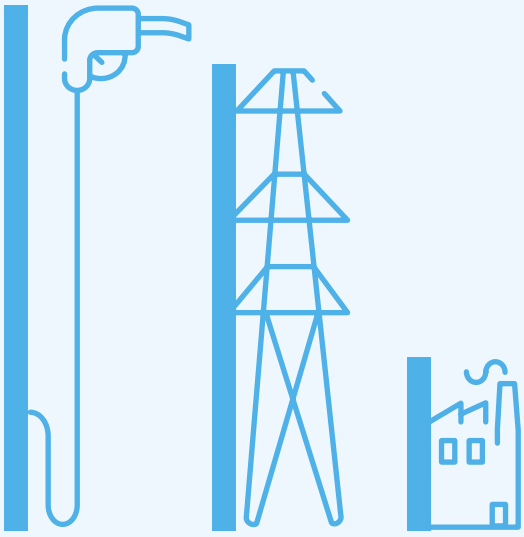
Increasing the adoption of EVs will lower North Carolina's dependence on foreign oil while reducing a significant source of carbon dioxide emissions. Moreover, any emissions generated by EV charging are vastly offset by the absence of tailpipe emissions from the vehicles; this is the case even with current levels of fossil fuels powering the electricity grid[9] and without factoring in expected decreases in the power sector's carbon intensity[10] in almost every region of the country.

NORTH CAROLINA'S ANNUAL EMISSIONS PER VEHICLE



SOURCE: HTTPS://AFDC.ENERGY.GOV/VEHICLES/ELECTRIC_EMISSIONS.HTML

GROSS GREENHOUSE GAS EMISSIONS BY ECONOMIC SECTOR IN NORTH CAROLINA IN 2018



TRANSPORTATION	ELECTRICITY	INDUSTRY	AGRICULTURE	WASTE	HOME	COMMERCIAL
35.9%	32.8%	12.2%	6.6%	5.6%	3.5%	3.3%

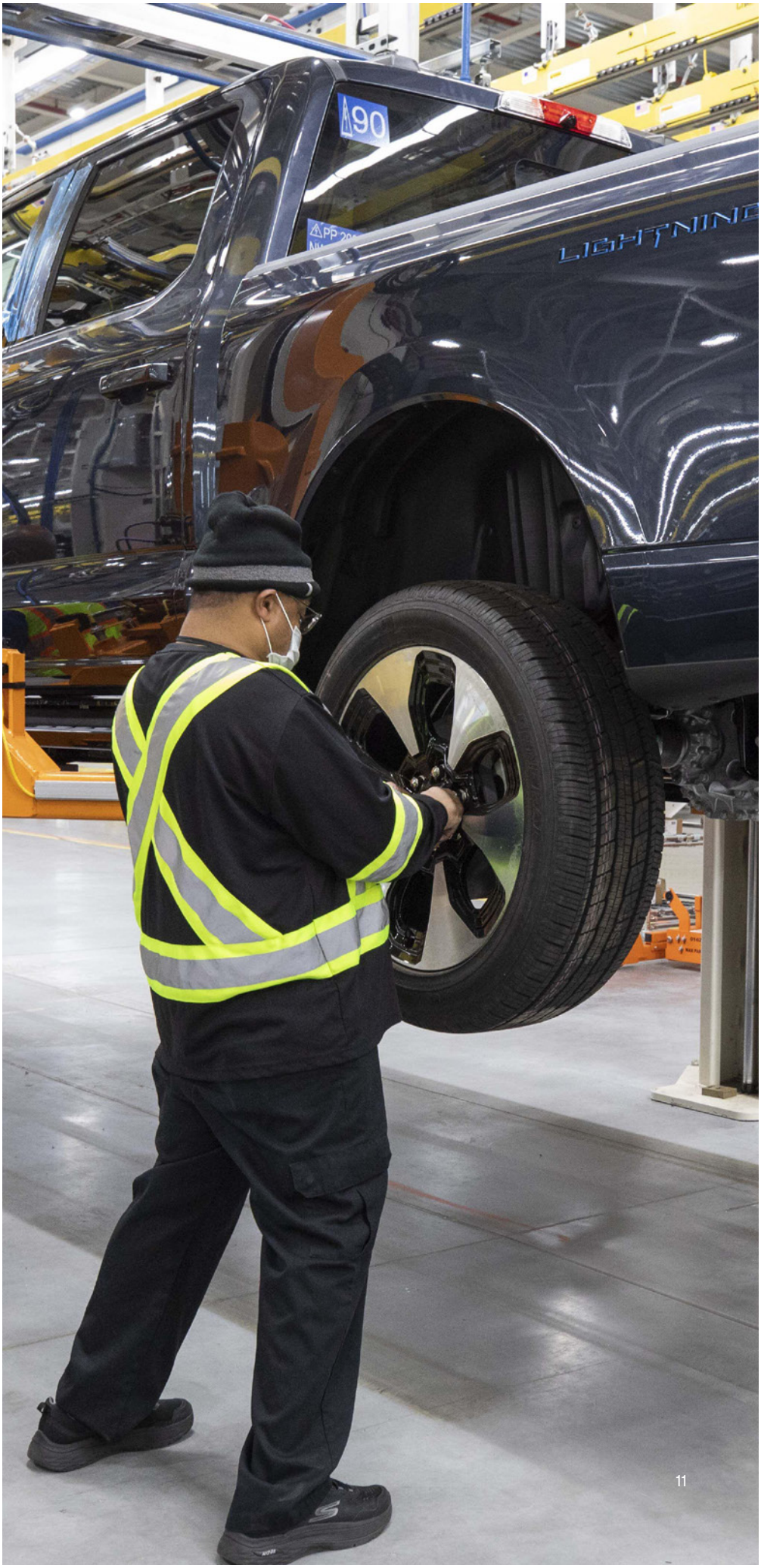
SOURCE: NCDEQ'S 2022 UPDATE NC GHG INVENTORY GRAPHIC

EVs ARE A BOOST TO NORTH CAROLINA'S ECONOMY

EVs will be a major boost to the economy of North Carolina and the country as a whole, creating a higher number of manufacturing jobs and investments than traditional gas-powered cars. A study from the Argonne National Laboratory found that a larger fraction of plug-in EVs had their components assembled in the United States compared to non-EV cars[11] in 2017.

A recent Economic Policy Institute report found that the country could create up to 150,000 new jobs[12] while protecting existing auto manufacturing jobs[13] from being offshored if the United States was a more proactive leader in EVs. Additionally, the EV sector employs workers with diverse educational and employment backgrounds beyond the automotive technicians and assembly workers found in the manufacturing of "traditional" ICE vehicles.

EV sector jobs include electricians, scientists who conduct research in electric drive technology, manufacturing workers who build the vehicles, and the automotive maintenance technicians who repair them. Most of these occupations require specialized training or work experience in EV manufacturing and maintenance, which could also translate into new opportunities for North Carolina's community colleges and universities.



AUTOMOBILE PRODUCTION LINE

North Carolina Lands EV Manufacturing Jobs

After years of recruiting, but then losing out to other states, North Carolina has finally landed an auto manufacturing plant – and it's electric! According to the Southern Alliance for Clean Energy, the Southeast region captured over one-third of America's EV vehicle and battery manufacturing investments and jobs[15] during 2021-22 – totaling $32.8 billion in investments in each of the six states and expected to create over 40,000 jobs. Regional EV sales increased 50 percent during this period. However, it's not all positive news. The Southeast lags many other states in pro-electric transportation policies, regulations, and programs.

North Carolina landed Toyota's first North American battery manufacturing facility and Vietnamese EV maker VinFast's first plant.

The state is home to several EV charging stations and medium- and heavy-duty vehicle manufacturing facilities.

North Carolina's in-state medium- and heavy-duty EV manufacturers will likely see new market opportunities with the state's adoption of the ZEV bus and truck Memorandum of Understanding (MOU)[17] in July 2020. The agreement sets North Carolina and 14 other states, plus Washington, D.C., on a path to achieve 100% ZEV bus and truck sales by 2050, with an interim goal of 30% by 2030. These states account for 35% of the nation's medium- and heavy-duty fleets, making the MOU the largest-ever state partnership to slash vehicle pollution.

> "North Carolina's strong commitments in building a clean energy economy, fighting climate change and reducing greenhouse gas emissions in transportation make it an ideal location for VinFast to develop its premium, smart and environmentally friendly EVs."

LE THI THU THUY
VINGROUP VICE CHAIR
AND VINFAST GLOBAL CEO

> "This marks another significant milestone for our company. This [N.C.] plant will serve a central role in Toyota's leadership toward a fully electrified future and will help us meet our goal of carbon neutrality in our vehicles and global operations by 2035."

NORM BAFUNNO
SENIOR VICE PRESIDENT,
UNIT MANUFACTURING AND
ENGINEERING AT TOYOTA MOTOR
NORTH AMERICA

In-state manufacturing facilities:

VOLVO, MACK, ABB, DAIMLER TRUCK North America, SIEMENS, Wolfspeed, ARRIVAL, FREIGHTLINER, Thomas Built Buses

AUTOMOTIVE NEWS
SEPTEMBER 4, 2022

Toyota expands N.C. battery plant plans

Toyota announced a near tripling of its investment in a new battery plant being built in Liberty, N.C., southeast of Greensboro. Scheduled to begin production in 2025, the $3.8 billion manufacturing facility is expected to create 2,100 jobs to produce batteries for hybrid and battery electric vehicles.[14]

WTVD-TV
MARCH 29, 2020

North Carolina lands first car manufacturer in historic development project

VinFast plans to invest and build a $4 billion new manufacturing facility in Chatham County. The operation is set to add at least 7,500 jobs. Production for electric cars and batteries is expected to start in 2024 and the plant will eventually produce 2,000 cars a year.[16]

EVS COST LESS OVER TIME AND ARE MORE RELIABLE THAN TRADITIONAL CARS

It's important to dispel myths around EV affordability and reliability. For example, a recent Deloitte Global Automotive Consumer Study found that 53 percent of Americans[18] would not be willing to pay $500 more for an EV compared to a traditional gas-powered car. However, this ignores the fact that the total cost of ownership for any car largely comes down to maintenance, repairs, and fuel costs – not the initial purchase price. Here, EVs overwhelmingly win – their maintenance costs, on average, are 40 percent lower than traditional gas-powered cars over their lifetime.[19]

EVs are also three times more mechanically efficient than gas-powered cars, with 59 to 62 percent of the electrical energy being converted into power to turn the wheels, compared to around 20 percent of fuel energy conversion in traditional vehicles.[20] Also, there is no engine oil that needs to be regularly changed or fuel filters, spark plugs, and multi-speed transmissions, which are costly to service. The EV battery and motor require minimal to no maintenance, and the use of regenerative braking significantly reduces wear and tear on the brakes and replenishes the battery.

Factoring this in with winter 2022 gas prices, EVs are three to five times cheaper to drive per mile than gas-powered vehicles nationally.[21] In fact, in North Carolina and states across the Southeast, some EVs are five to six times cheaper to drive due to differences in electricity prices and fuel taxes.

Similarly, there is a perception that EVs don't have enough range to meet the average person's driving needs. This fear, known as range anxiety,[22] was expressed by 55 percent of respondents in a recent Consumer Reports survey[23] who said they were hesitant to get an EV.

The average driver travels roughly 50 miles a day[24] according to the U.S. Federal Highway Administration, and many people are driving much less than that with the wider adoption of long-term remote work during and post-COVID.[25] Even at twice this distance a driver would still have roughly 150 miles of range available on 25 different models of EVs,[26] including the cheapest model available. These ranges will only get longer as battery technology improves.

"We've seen a dramatic increase in public interest in electric vehicles, yet they still only represent a small percentage of the overall U.S. market. Electric vehicles should top the list for American drivers. They are more fun to drive, require less maintenance and cost less over time than gas cars, and they're better for the environment. Electric car owners are becoming the mainstream car buyer."[27]

STUART GARDNER
DIRECTOR OF GENERATION180'S ELECTRIFY YOUR RIDE PROGRAM

"I've never loved a car before until my Nissan Leaf. I love how quiet it is, which makes driving a more enjoyable experience. I also like that I don't have to worry about gas prices, it requires less maintenance, and there are lots of places around the Triangle where you can charge for free."

EMILY E.
HILLSBOROUGH, N.C.

Sign the National Going Electric Pledge

"I want to help accelerate the transition to 100% clean energy. I pledge to make the next vehicle I purchase an electric car."

GENERATION180.ORG/GOING-ELECTRIC-PLEDGE

TRANSPORTATION: ECONOMIC IMPACTS FOR NORTH CAROLINIANS

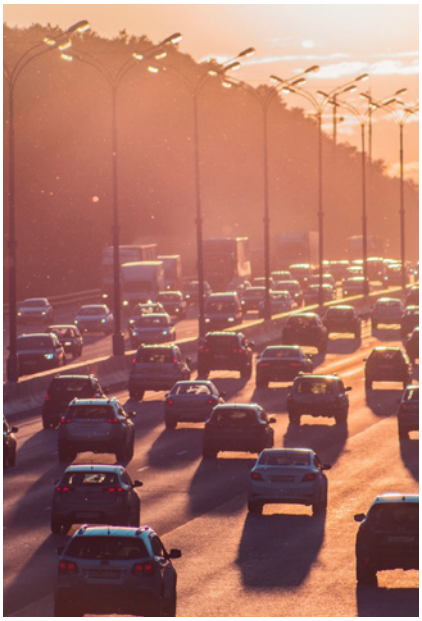
Transportation represents the second largest expense for many Americans.[28] The average middle-income household devotes nearly a fifth of its income to transportation costs, with more than a quarter of that going to gasoline and motor oil. Southeastern states account for 6 of the top 10 states where drivers spend the highest percentage of their income on gas, with North Carolina ranking #6 in the nation.[29] For low-income households, transportation consumes nearly 30 percent of total income.[30]

North Carolinians spend $8.8 billion per year on imported gasoline to meet their transportation needs.[31,32] And, because the state has no operating petroleum refineries, most of the money spent on gasoline and diesel flows out of North Carolina's economy and produces very few jobs.

In addition to being a large household expense, fuel costs are the most volatile cost component of total household transportation spending.[33] Because low- and middle-income households devote a larger share of their income to transportation compared to higher earners, these communities stand to benefit most from the cost savings associated with EV ownership and expanded access to public transit options.

Electric vehicles offer huge potential to save money on fueling costs. Based on March 2022 fuel costs, driving an EV is dramatically cheaper per mile than driving a gas-powered vehicle. In fact, in North Carolina, EVs are 5–6 times cheaper to drive.[34] Additionally, gas prices are inherently volatile. For example, as of December 4, 2022, the average price of regular gas in North Carolina was $3.14 a gallon according to AAA, but in July 2022, the cost was a record $4.67 a gallon.[36] For comparison, the average residential electricity rate in North Carolina is 12 ¢/kWh.[37] To understand this another way, based on December 2022 gas prices, it would cost a North Carolinian $72.33 to fill the 23-gallon gas tank of a Ford F-150. However, it would cost only $15.72 to charge the 131 kilowatt-hour battery of the electric Ford F-150 Lightning. That's a savings of over $56.00.

Furthermore, the health impacts of tailpipe pollution are predicted to cost North Carolinians more than $1.6 billion through 2050 in emergency room visits, lost workdays, and premature deaths.[38] According to the American Lung Association, North Carolinians stand to reap the largest health cost savings among Southeastern states – estimated at $35.3 billion through 2050 – if transportation emissions and pollution are reduced by an increase in EVs.



North Carolinians travel 382+ million miles every day and could save money on fueling costs by switching to electric vehicles.[35]

HEALTH SAVINGS DUE TO EVS 2020-2050

STATES	HEALTH BENEFITS (BILLIONS)	PREMATURE DEATHS AVOIDED	ASTHMA ATTACKS AVOIDED	LOST WORK DAYS AVOIDED
North Carolina	$35.30	3,210	79,100	38,700
Virginia	$29.70	2,700	70,900	350,000
Georgia	$29.30	2,640	78,500	385,000
Tennessee	$24.90	2,180	53,800	255,000
Kentucky	$20.40	1,850	43,000	200,000
South Carolina	$17.00	1,550	32,000	154,000

SOURCE: AMERICAN LUNG ASSOCIATION: HTTPS://WWW.LUNG.ORG/GETMEDIA/13248145-06F0-4E35-B79B-6DFACFD29A71/ZEROING-IN-ON-HEALTHY-AIR-REPORT-2022.PDF

TRANSPORTATION AND RURAL COMMUNITIES

All North Carolinians, regardless of where they live or work, should have access to electric vehicles and the associated public charging infrastructure. They should also have the opportunity to benefit from the lower operating costs, reduced maintenance needs, and higher level of performance that EVs provide. Residents of rural communities – who drive more miles per year than urban residents – have the most to gain from the economic opportunities, cost savings, improved air quality, and health benefits that EVs offer.[39]

In rural parts of our nation – home to 20 percent of Americans[40] and responsible for almost 70 percent of America's road miles[41] – EVs can be an especially attractive alternative to traditional ICE vehicles. Rural residents drive more than their urban counterparts,[42] spend more on vehicle fuel and maintenance,[43] and often have fewer alternatives to driving to meet their transportation needs.

In North Carolina, drivers in rural areas average 56 miles per day, compared to 32 miles for urban drivers and 46 miles for suburban drivers.[44] Over the long run, EVs will help residents of rural areas reduce those costs and minimize the environmental impact of transportation in their communities. Interest in EVs is growing rapidly across all regions of the state. According to Generation180's 2022 consumer sentiment survey, of the 52 percent of North Carolinians who said they are "likely" or "very likely" to consider an EV as their next car or truck.

Increasing the availability of EV public chargers will help give rural North Carolinians — and anyone who drives in our rural communities — the confidence that they will be able to recharge when and where they need to, just as reliably as they can refuel a gas-powered vehicle today.[45]

"We love living in rural N.C., but it's half an hour to the nearest city, so the resources we've saved by going electric have made a huge difference to our commuting costs, and being able to charge our vehicle at home has freed us from elevated rural fuel prices."

KELLEY M.
STATESVILLE, NC

VEHICLE MILES TRAVELED IN NORTH CAROLINA

URBAN
32.7 mi

SUBURBAN
46.1 mi

RURAL
56.8 mi

SOURCE: US DEPARTMENT OF TRANSPORTATION, BUREAU OF TRANSPORTATION STATISTICS: HTTPS://WWW.BTS.GOV/STATISTICAL-PRODUCTS/SURVEYS/VEHICLE-MILES-TRAVELED-AND-VEHICLE-TRIPS-STATE

Current Landscape

After a decade of slow but steady EV sales growth in the United States, registrations increased a dramatic 60 percent in the first quarter of 2022, even as overall new car sales dropped 18 percent.[46] As of August 2022, there were 47,839 EVs registered in North Carolina.

Supply inventory remains a key challenge as manufacturers struggle to rebuild lost inventory and face an ongoing computer chip shortage and other supply chain problems. The pandemic continues as a root cause and gets much of the blame, along with disruptions caused by the conflict in Ukraine, and higher interest rates.

CURRENT LANDSCAPE

As of October 2022, there were 1.3 million electric vehicles on the roads across the United States.[47] The sharp increase in EV registrations at the start of 2022 meant that the EV share of the overall U.S. auto market hit an all-time high of 4.6 percent. Analysis by IHS Markit[48] projects that 25 to 30 percent of new car sales could be electric by 2030, and 40 to 45 percent by 2035. Using similar adoption rates, Reuters estimates that by 2050 more than half of the vehicles on U.S. roads could be EVs.[49]

In North Carolina, there were more than 44,000 registered EVs and nearly 1,000 public charging stations as of August 2022.[50]

These sales represent a significant economic opportunity for North Carolina, given the demonstrated consumer demand. The state must act to accelerate the adoption of EVs to continue building momentum and prevent being left behind in the future clean mobility landscape.

Despite supply chain challenges, automakers are optimistic and continue to push forward with the introduction of new EV offerings, with industry groups estimating nearly 100 such options coming to the U.S. market in early 2023.

"Our EV drives beautifully. We love driving past gas stations in our car and waking up in the morning with a full charge. Plus, as people of faith we are very happy that as the electric grid becomes cleaner, so does our car."

GARY S.
RALEIGH NC

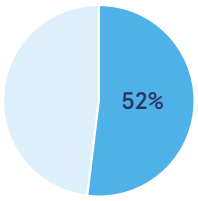
NORTH CAROLINA CONSUMER SENTIMENT SURVEY

METHODOLOGY

This survey (and subsequent analysis) was conducted online from May 26 to June 16, 2022, using a sample and platform provided by the national market research firm Dynata.

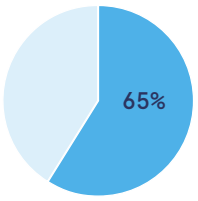
The analysis is based on a representative sample of 1,202 North Carolinians ages 18 and older located across the state. It has a 95% confidence interval and a margin of error of +/- 3.0%.

KEY FINDINGS



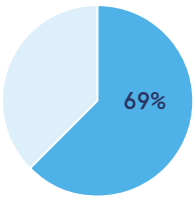
Over half of North Carolinians are likely to consider an EV for their next car.

52% responded "somewhat likely" or "very likely" to consider an EV for their next vehicle (assuming they were in the market for a new car within the next five years).



North Carolinians have a positive view of electric vehicles.

65% responded as having a "somewhat positive" or "very positive" view of electric vehicles when asked, "Given what you know, what is your perception of EVs?".



Nearly 3/4 of North Carolinians support state-level EV incentives.

69% of respondents "strongly support" or "support" North Carolina offering an EV incentive.

SEE APPENDIX FOR FURTHER DETAILS.

NORTH CAROLINA'S EV FOOTPRINT

With nearly 570 dealerships selling new cars statewide North Carolina represents 2.3 percent of all new vehicle registrations in the United States. Over 430,000 new cars and light-duty trucks were sold in the state in 2021, giving North Carolina a sizable footprint in the U.S. automotive industry.

North Carolina currently ranks 10th[51] in the nation in total EV sales, highlighting consumer demand. However, additional action must occur to ensure that the state does not fall behind other parts of the country in legislative, executive, and regulatory actions.

We encourage legislators, the administration of Governor Roy Cooper, the N.C. Utilities Commission, utilities, local governments, the private sector, and others to support an equitable transition to electric transportation that is in line with the state's long-term carbon reduction requirements. Stakeholders should also work to accelerate the adoption rate of EVs across the state.

"We are rarely 'early adopters' so have enjoyed educating folks about EVs everywhere we go for the past 5 years."

KITTY AND MIKE D.,
CARRBORO, NC

ELECTRIC VEHICLE GROWTH IN NORTH CAROLINA

North Carolina currently ranks 10th[51B] in the nation in total EV sales, highlighting consumer demand. However, some of these EV sales are occurring in neighboring states that have more vehicle availability or via "direct-to-customer" sales from a manufacturer (e.g., Tesla).

Unlike many other states, as of August 2022 North Carolina did not offer any state-level financial incentives for EVs and had not yet adopted advanced clean car or truck standards or other policies that require manufacturers to make more low-to-no emission models available to state residents.

However, initial market signals via Executive Branch action and regulatory approval of utilities' EV programs have sent positive signals to EV manufacturers, car dealers, and customers. This has helped EVs establish a surprisingly strong, early presence in the state – for the time being.

More legislative, executive, and regulatory action is needed to meet North Carolinians' demand for EVs and to ensure that the state continues to recruit EV and battery manufacturers, jobs, and investments.

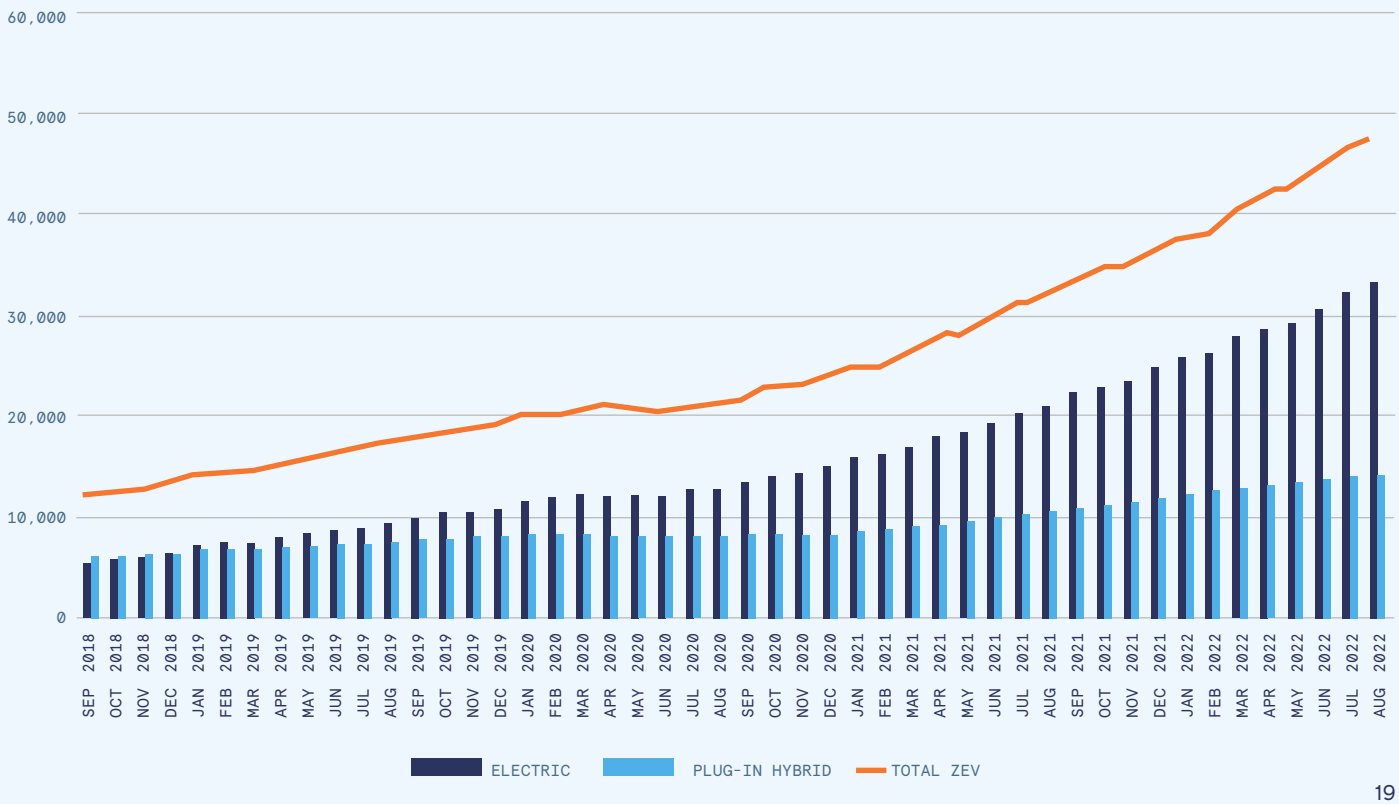
OCTOBER 2018
EXECUTIVE ORDER 80
Set North Carolina's first goal for electric transportation adoption of at least 80,000 ZEVs on state roads by 2025.

This goal was increased by Executive Order 246 in January 2022 to at least 1,250,000 ZEVs by 2030, and for 50% of sales of new vehicles to be zero-emission by 2030.

2019 HOUSE BILL 329 / S.L. 2019-132 "RENEWABLE ENERGY AMENDS"
Passed overwhelmingly by the N.C. Assembly, this allowed non-utility owners of public EV chargers to resell power to EV drivers.

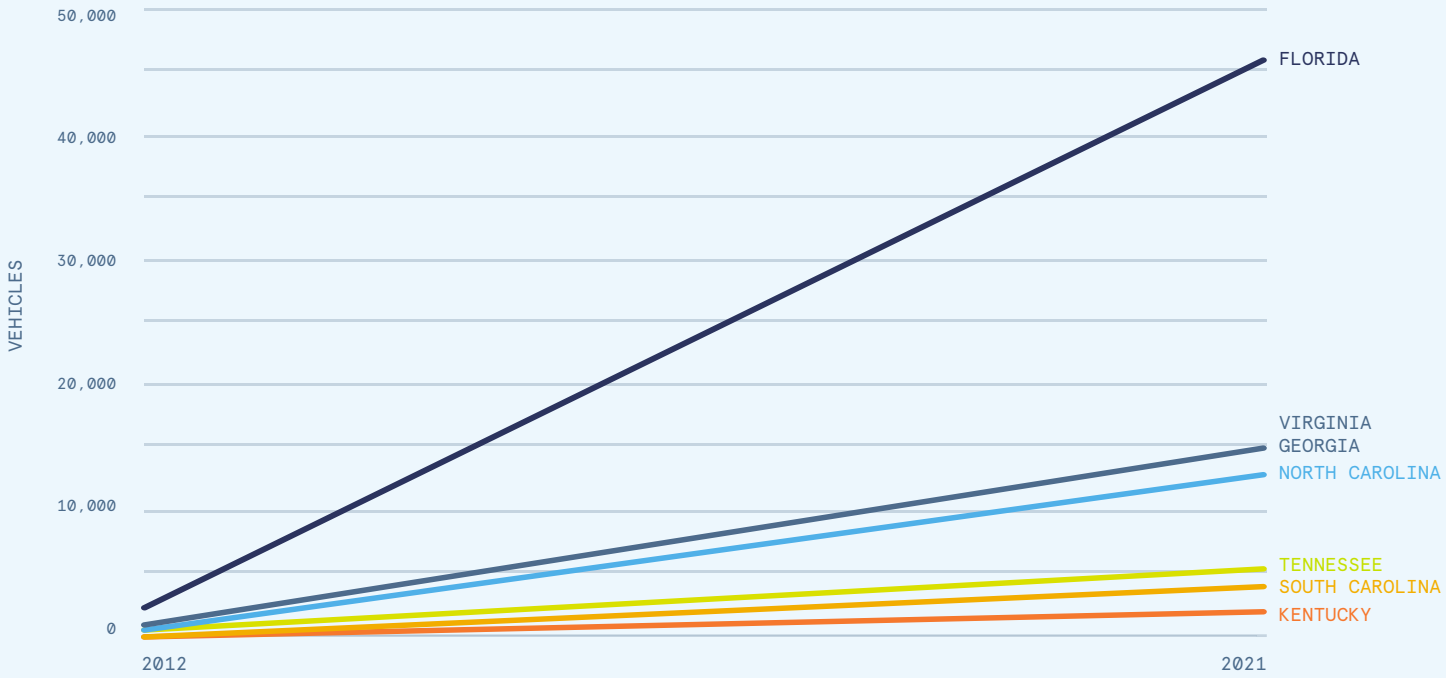
Since these initial administrative and legislative "pro-EV" actions, the state has seen a 268 percent increase in the number of registered EVs (battery and plug-in hybrid) from 12,715 in 2018 to more than 47,800 in August 2022.

ACTIVE VEHICLE REGISTRATIONS OF ZEVS IN NORTH CAROLINA



SOURCE: NCDOT (LAST UPDATED SEPT 4, 2022; REGISTRATIONS THRU JULY)

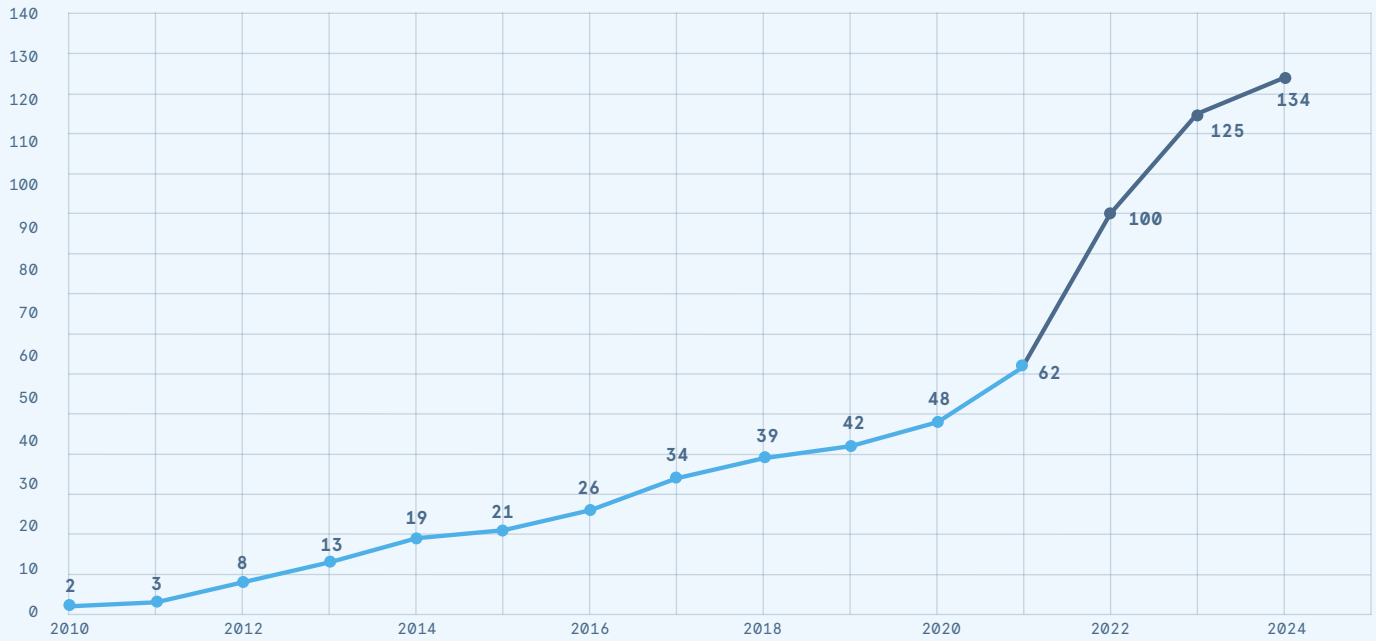
U.S. SOUTHEAST: GROWTH OF EV SALES 2012-2021



SOURCE: RENEWABLES ON THE RISE DASHBOARD: HTTPS://ENVIRONMENTAMERICA.ORG/CENTER/RESOURCES/RENEWABLES-ON-THE-RISE-DASHBOARD

MORE EV OPTIONS FOR CONSUMERS

Total number of electric vehicle models (**historic** and **projected**) in the U.S. market 2010-2024



SOURCE: ELECTRIC POWER RESEARCH INSTITUTE
HTTPS://MORNINGCONSULT.COM/2021/12/22/ELECTRIC-VEHICLES-CONSUMERS-2022

Barriers to EV Adoption

While a variety of challenges continue to impede widespread EV adoption, three significant barriers are holding North Carolinians back from going electric:

- Product availability
- Price
- Availability of charging options

LACK OF AVAILABLE MODELS AND INVENTORY

It's not easy to track how many EV models are consistently available at North Carolina dealerships. Manufacturers determine the overall distribution of EVs nationwide, prioritizing states that have policies that support an EV market, such as ZEV states (those that have adopted Clean Car Standards). While a new-car dealership can technically order or trade for specific models, this is not always ideal as it can contribute to increased delivery times and costs.

In addition to specific models being unavailable, a 2019 Sierra Club report[52] found significant nationwide differences between ZEV and non-ZEV states in the overall inventory of EVs in stock. Non-ZEV states had significantly less inventory: among those that offered EVs, a majority (52 percent) had only 1–2 EVs available. In ZEV states, meanwhile, a majority (53 percent) offered more than 2 EVs, 27 percent offered 3-5 EVs, 13 percent offered 6-10 EVs, and 12 percent offered more than 10 EVs.

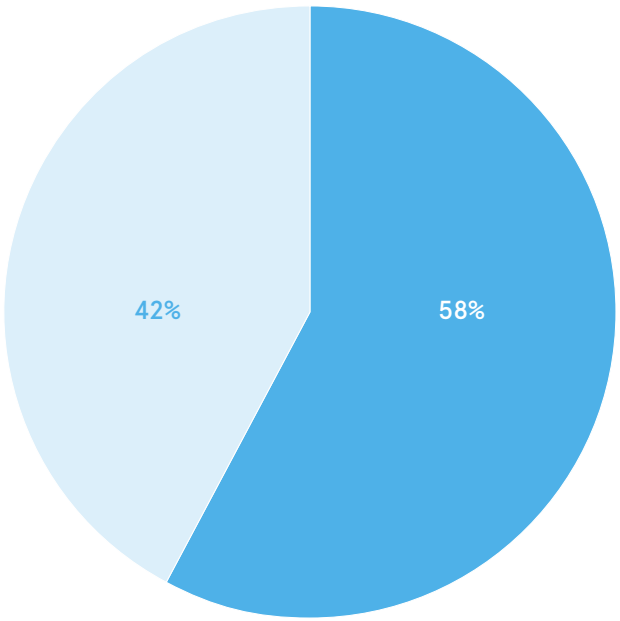
Based on a search (in November 2022) for new electric vehicles within 100 miles of the Raleigh zip code (27608), only 45 electric vehicles were available.[53] Conversely, a similiar search for new gas vehicles on Edmunds found over 4,000 available.

Similarly, a search for used electric vehicles via CarMax within 100 miles of the Raleigh zip code (27608) found only 31 electric vehicles available, compared to over 1,200 used gas-powered vehicles.[54]

A lack of inventory is preventing consumers who want to go electric from finding the car they need at an in-state dealership.

North Carolinians would support a state policy focused on auto manufacturers' having EV requirements.

Generation180's survey of North Carolinians found that 58 percent of respondents said they would support a state policy that required auto manufacturers to provide a minimum number of new EVs for sale in North Carolina; and to gradually increase the number each year, making more EV models accessible to North Carolina consumers.



HIGHER UPFRONT COSTS BUT GREATER LONG-TERM SAVINGS

The relatively higher upfront cost of EVs is preventing many North Carolinians from accessing the benefits of electric transportation. EVs currently remain slightly more expensive than comparable gas-powered cars, mostly because of the cost of the battery. However, battery costs are declining much faster than anticipated, and experts expect EVs to reach cost parity with gas-powered cars between 2024 and 2026.[55]

Moreover, EVs save drivers money over the long run. A study by Consumer Reports[56] found that EV owners are spending half as much to repair and maintain their vehicle as owners of gas-powered vehicles. The analysis found that, for the most popular EVs under $50,000, drivers save around 60 percent in fuel costs and $6,000-$10,000 in lifetime ownership costs compared to drivers of the best gas-powered cars in that segment. Unfortunately, too many North Carolinians are being prevented from accessing these benefits because of the higher upfront costs of EVs today.

In Generation180's survey of North Carolina consumers, 69 percent of respondents reported that access to purchase discounts, such as rebates provided at the point of sale, would make them more likely to buy an EV for their next vehicle.

Low- to moderate-income communities could particularly benefit from EV technology, as they spend a greater proportion of their income on transportation (specifically vehicle ownership). This is due to higher fuel costs and maintenance costs associated with owning older and less efficient vehicles. Therefore, car-dependent low-income communities have the most to gain from the potential cost savings.

More than 69% of respondents reported that access to purchase discounts would make them more likely to buy an EV.

2022 NORTH CAROLINA CONSUMER SURVEY

LIMITED ACCESS TO CHARGING INFRASTRUCTURE

The lack of available public charging stations is another significant factor holding back EV adoption. In Generation180's survey of North Carolina consumers, 68 percent of respondents reported that proximity to a public charging station would make them more likely to consider purchasing an EV, and 65 percent said the ability to charge at work would increase this likelihood.

According to the U.S. Department of Energy's Advanced Fuels Data Center, North Carolina currently has 867 public Level 2 plugs and 157 public Direct Current Fast Charger (DCFC) plugs to support approximately 44,000 EVs.[57] In comparison, the neighboring state of Virginia has 1,909 public Level 2 plugs and 432 public DCFC plugs to support approximately 25,000 EVs, and South Carolina has 1,909 public Level 2 plugs and 432 public DCFC plugs to support approximately 25,000 EVs. It's troubling that North Carolina, which has roughly 2 million more residents than Virginia, is so far behind in charging infrastructure.

North Carolina has received and is deploying $92 million as part of the national Volkswagen emissions settlement, which will be used to expand the state's charging network, electric school buses, etc. The state is also expected to receive more than $109 million from the bipartisan Infrastructure Investment and Jobs Act, which the U.S. Congress passed in late 2021, and a significant amount will increase EV charging infrastructure in communities from the mountains to the coast. Additionally, the private sector is adding EV chargers at businesses to meet customer and employee demands.

The recently passed National Electric Vehicle Infrastructure program (NEVI) enabled by the recent passing of the Infrastructure Investment and Jobs Act (IIJA) will provide a dramatic boost to the state's EV public charging infrastructure. As part of the IIJA, North Carolina will receive $109 million over the next five years to build charging infrastructure. The N.C. Department of Transportation submitted the statewide plan on August 1, 2022. The plan will support the development of the state's public electric vehicle charging network along established corridors. The state's plan can be found at: www.ncdot.gov.

68% of respondents reported that proximity to a public charging station would make them more likely to consider purchasing an EV.

2022 NORTH CAROLINA CONSUMER SURVEY

"My dog and I just finished a 1700 mile round trip from Charlotte to Milwaukee. I've been driving 100% electric since 2012, and in the last 12 months, post-COVID and with the growing charging infrastructure, I've been able to easily travel from Charlotte to Connecticut, Georgia, and now Wisconsin."

BILL F.,
HUNTERSVILLE, NC

EXISTING AND APPROXIMATE LOCATIONS OF FUTURE NEVI-COMPLIANT EV STATIONS ALONG AFCs

SOURCE: HTTPS://WWW.NCDRIVEELECTRIC.COM

INCREASING ACCESS TO CHARGING INFRASTRUCTURE

According to a 2018 white paper from the International Council on Clean Transportation, at least 43 percent of U.S. households don't park their vehicle within 20 feet of an electrical outlet.

While there are around 47,000 charging stations nationwide – and growing – roughly 80 percent of charging still takes place at home. This can be a challenge for EV owners who live in apartments or condominiums (referred to as multi-family dwellings) or individuals in single-family homes without access to off-street parking.

While single-family home owners can more easily make any electrical upgrades necessary to install an EV charger, condo owners and apartment renters can experience significant barriers to installing charging in their building. These might include securing the approval of an HOA or landlord, high upfront costs, ownership/maintenance responsibility, or insufficient parking spaces.

To create equitable access to EVs North Carolina should consider potential funding mechanisms to help offset the upfront costs and incorporate EV readiness into state building codes.

↓
Download Gen180's Multi-Unit Dwelling Toolkit

Policy Matters

State-level policy can have a meaningful impact on electric vehicle adoption, as witnessed in other states across America. Unfortunately, North Carolina is lacking in pro-EV policies.

North Carolina made substantial progress in enacting legislation to reduce emissions in the power sector with the passage of House Bill 951, "Energy Solutions for North Carolina," in 2021. However, comparatively little legislative action has occurred to decrease transportation emissions and increase EVs on state roads.

As of August 2022, EV adoption rates in North Carolina were still under 1 percent of total sales, with nearly 49,000 registered EVs. State-level policy and regulations are becoming more important than ever in helping to tackle transportation-related emissions in the state. Furthermore, North Carolina's citizens, business community, local governments, and others are calling for greater action to ensure that the state maintains – and strengthens – its regional and national clean energy and transportation leadership.

In order for North Carolina to remain relevant in the nationwide transition to EVs, while also attracting the jobs, investments, and manufacturing opportunities in the electric transportation sector, we recommend that elected officials and decision makers consider the following legislative, regulatory, and executive actions being pursued by other states.

FAYETTE STREET / RALEIGH

NORTH CAROLINA'S ELECTRIC TRANSPORTATION EXECUTIVE AND LEGISLATIVE ACTIONS

OCTOBER 2018 / Governor Roy Cooper's Executive Order 80, "North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy," established goals of a 40 percent reduction in statewide greenhouse gas emissions and registration of 80,000 zero-emission vehicles (ZEVs) by 2025. It also directs administration-wide actions to reduce greenhouse gas emissions and spur clean energy economic opportunities. By setting EV deployment goals and mandating a coordinated EV charging rollout among agencies, the state is ahead of other Southeastern states that lack such plans.

JULY 2019 / The N.C. General Assembly overwhelmingly passed House Bill 329 / S.L. 2019-132, "Renewable Energy Amends," which allowed non-utility owners of public EV chargers the ability to resell retail power to EV drivers and not be defined or regulated as a utility.

OCTOBER 2019 / As directed by Executive Order 80 and following an extensive stakeholder process, the N.C. Department of Transportation released "North Carolina ZEV Plan: A Strategic Plan for Accelerating Electric Vehicle Adoption in North Carolina,"[59] which outlines four key areas where the state can provide support for potential EV buyers: Education, Convenience, Affordability, and Policy. An Update Plan was released in August 2022.[60]

JULY 2020 / North Carolina joined 15 states and the District of Columbia as a signatory to the Medium- and Heavy-Duty (MHD) Zero-Emissions Vehicle Memorandum of Understanding, which strives to make all sales of MHD vehicles zero-emission by 2050, with an interim goal of 30 percent by 2030.

JANUARY 2022 / Governor Cooper's Executive Order 246, "North Carolina's Transformation to a Clean, Equitable Economy," directed the N.C. Department of Transportation to create a Clean Transportation Plan,[61] which emphasizes the importance of environmental justice and equity in the state's clean economy, increases the state's total number of registered zero-emission vehicles to at least 1.2 million by 2030, and increases the sale of ZEVs to 50 percent of in-state new vehicle sales by 2030. The Plan will be released in the spring of 2023.

OCTOBER 2022 / Governor Cooper's Executive Order 271, "Growing North Carolina's Zero-Emissions Market,"[62] directs the N.C. Department of Environmental Quality to work with stakeholders to develop an Advanced Clean Trucks (ACT) program, which would require manufacturers to sell an increasing percentage of zero-emission trucks and buses to help meet market demands. It also outlines a comprehensive strategy for the state to support automakers, fleet owners, and other partners to grow the MHD ZEV market through investment in charging infrastructure, purchase incentives, workforce development, demonstration projects, technical assistance, and other strategies identified through development of the North Carolina Clean Transportation Plan and supported by unprecedented federal funding through the Infrastructure Investment and Jobs Act and the Inflation Reduction Act.

SINCE JULY 2020 / North Carolina has distributed more than $66 million of its $92 million from the Volkswagen Settlement,[58] which is being used for school and transit bus replacement, clean heavy-duty on-road and off-road equipment, and zero-emission vehicles and charging infrastructure.

"A year ago, the Bipartisan Infrastructure and Jobs Act (IIJA) was being signed into law. That $550 billion action paved the way for the $54.2 billion in the CHIPS and Science Act (CHIPS) and the largest investment in clean energy America has ever made with the $369 billion Inflation Reduction Act (IRA) signed into law this summer. Combined, the brain (CHIPS), backbone (IIJA), and engine (IRA) will spur clean energy innovation while building out essential infrastructure to scale clean energy technologies quickly. They will also create long-term certainty for industry to keep innovating and driving down costs."

WENDY PHILLEO
EXECUTIVE DIRECTOR OF GENERATION180[63]

FEDERAL AND STATE POLICIES

Many states have enacted pro-EV policies in recent years and are starting to reap the benefits. These include laws that increase consumer purchases of electric cars and medium- and heavy-duty vehicles, expand EV charging infrastructure, reduce transportation emissions, provide EV tax credits or rebates, and recruit EV manufacturers to their states. Unfortunately, North Carolina is lacking in pro-EV policies.

We encourage decision makers to consider the following:

The **Advanced Clean Truck (ACT)** standard requires truck makers to sell an increasing percentage of clean, zero-emission trucks annually from 2024 to 2035, which will cut toxic fossil fuel emissions from diesel and gasoline trucks.

Direct-to-consumer automotive sales allow consumers to purchase vehicles directly from EV manufacturers, while increasing market competition and expanding EV model choices for North Carolinians. Currently, 21 states allow the direct sale of EVs to customers, while 29 states either limit direct sales to a single manufacturer (e.g., Tesla) or prohibit direct sales completely. The ability of a manufacturer to sell products and services to a consumer – as soon as they are produced – is critical to achieving mass adoption of EVs for the light-, medium-, and heavy-duty vehicle sectors. States that allow direct-to-consumer sales have quickly become EV market leaders, as well as gaining a competitive advantage in recruiting EV manufacturing facilities, jobs, and investments. For example, New York and Florida have similar populations, yet Florida allows direct sales to consumers and sold 80% more EVs than New York[66] in 2020.

Statewide "EV-ready" building codes deliver dramatic cost savings to home and building owners, even if they don't plan to install charging stations right away. At their most basic, the codes establish EV infrastructure requirements for new construction projects, including the electrical capacity and pre-wiring to make possible the future installation of EV charging stations. Studies have shown that installing EV-ready charging infrastructure is significantly less expensive during new construction than it is for building retrofits, which can be 4 to 10 times more expensive. Nearly two-dozen states, cities, and counties have adopted EV-ready building codes.[68]

Innovative EV financing programs such as "pay as you save" on-bill financing or leases capture tax credits for public and private fleet vehicles, medium- and heavy-duty trucks, and buses.

The Infrastructure Investment and Jobs Act (IIJA) is the largest and most comprehensive infrastructure bill in U.S. history.

North Carolina is expected to receive more than $10 billion[64] from the IIJA for transportation and infrastructure projects. This includes $109 million[65] over five years from the federal bipartisan infrastructure bill as part of the National Electric Vehicle Infrastructure (NEVI) program. A significant amount of this funding will go toward increasing the number of electric vehicles and charging infrastructure in communities across the state.

"The bipartisan infrastructure bill is a big win for all North Carolinians, funding infrastructure projects and creating good-paying jobs without raising taxes,"

U.S. SEN. THOM TILLIS[67]
R-NORTH CAROLINA
LEAD NEGOTIATOR OF THE BILL

CONCLUSION

The transportation sector is North Carolina's largest source of carbon emissions, but it also represents a significant opportunity for the state to expand its leadership role in our nation's transition to clean energy and to become an electric transportation manufacturing hub.

In October 2021, the North Carolina General Assembly overwhelmingly passed bipartisan energy legislation, and Governor Roy Cooper signed it into law. The legislation requires utilities to reduce carbon emissions from power plants 70 percent by 2030, and to achieve carbon neutrality by 2050. During his two terms in office, Cooper has also signed several clean energy and transportation Executive Orders, and state agencies are working together to meet clean transportation goals.

While North Carolina has begun to tackle and reduce carbon emissions from electricity generation within its borders, it has yet to enact policies that target emissions from the state's transportation sector.

Generation180 developed this report to provide a comprehensive overview of the opportunities that EVs provide to North Carolina and its residents. It provides a detailed analysis of the benefits that EVs can provide, the current state of EV adoption in North Carolina, the barriers to be addressed, and several key policies that support and are advancing transportation electrification in states across the nation. As we found in a representative survey of more than 1,200 North Carolina residents and in other recent studies, there is broad support among North Carolinians for a clean energy economy and a transition to electric vehicles.

We call on North Carolina's legislators, Governor Cooper and his administration, regulators, utilities, local governments, the private sector, and residents to support an equitable transition to electric transportation, in line with the state's long-term carbon reduction requirements. They should also work to accelerate the adoption rate of EVs, which will benefit all North Carolinians.

65% of North Carolinians reported having a positive perception of electric vehicles.

2022 NORTH CAROLINA CONSUMER SURVEY

GRANDFATHER MOUNTAIN STATE PARK

Reference Guides

The following pages highlight recommended actions that policymakers, EV advocates, and car dealerships can each take to support transportation electrification in North Carolina.

Generation180

Generation180 inspires and equips individuals to take action on clean energy. We envision a 180-degree shift in our energy sources – from fossil fuels to clean energy – driven by a 180-degree shift in people's perception of their role in making it happen – from apathy to agency, from despondency to determination, from hopelessness to hopefulness. Join us.

Electrify Your Ride

The Electrify Your Ride campaign works to educate individuals about electric vehicles, transform EV owners into effective advocates, and accelerate the arrival of electric transportation and a 100% clean energy future. We host educational events, partner with regional and national influencers, and tap local owners to become EV ambassadors within their communities to help popularize electric vehicles. Whether you're just learning about EVs or you're looking to help spread the word, Generation180 can help you find ways to plug in. Visit our website to learn more.

POLICYMAKERS

Transitioning to electric transportation represents a significant financial savings opportunity for North Carolina drivers and new EV and battery manufacturing jobs and investments to boost the state's economy. North Carolinians drive an average of 36.4 miles per day – and this is even higher for rural citizens. This alarmingly high level of driving has made the transportation sector the largest source of carbon emissions in the state, which contributes to respiratory illnesses and heart disease, not to mention the economic impact of higher gas and diesel prices on families.

BENEFITS

Strengthen North Carolina's Economy

Accelerating electric vehicle (EV) adoption is a catalyst for economic growth and innovation.

- Toyota, Vinfast, Thomas Built Buses, ABB, and others are creating thousands of new electric transportation manufacturing jobs and billions of dollars in investments across the state.
- The electric transportation sector will create more jobs in NC and keep money in the local economy compared to imported gas or diese. (M.J. BRADLEY, 2019)
- There are more than 8,000 electric transportation jobs in the state. (E2, 2022)
- Most of these jobs require specialized training or work experience in EV manufacturing and maintenance, which could create new opportunities for North Carolina's community colleges and universities. (ECONOMIC POLICY INSTITUTE, 2021)

Save North Carolinians Money

Electric vehicles will save North Carolina drivers money .

- North Carolinians spend $8.8 billion per year on imported fossil fuels to meet transportation needs, but because the state has no operating petroleum refineries, most of the money flows out of the economy and creates very few jobs. (FINANCE BUZZ, 2022)
- North Carolina drivers spend the fourth highest percentage of their incomes in the nation on gas. (FINANCE BUZZ, 2022)

Meet Consumers' EV Demand

Consumer demand is increasing, but an ongoing lack of EV inventory at North Carolina's auto dealerships is a major impediment to adoption.

- A survey of North Carolinians found that 52% are likely or very likely to consider an EV for their next car. (GENERATION180, 2022)
- EVs are popular among North Carolinians, but North Carolina new-car dealerships lack adequate inventory of gas or electric vehicles. (GENERATION180, 2022)
- A growing number of businesses in the state have committed to transitioning their vehicle fleets to EVs to remain economically competitive, mitigate fluctuating gas and diesel prices, save money, meet sustainability goals, and recruit and retain talent.

Reducing Transportation Emissions

The transportation sector is the largest source (35.9%) of carbon emissions in North Carolina, followed by power plants. (NCDEQ, 2022)

- EVs will continue to get cleaner as the state meets its electricity generation requirements stipulated by House Bill 951, "Energy Solutions for North Carolina."

RECOMMENDED POLICIES

Maximize the benefits of federal transportation funding:

North Carolina is set to receive billions in federal transportation funding from the Infrastructure Investment & Jobs Act (IIJA) and the Inflation Reduction Act (IRA), plus $92 million as part of the national Volkswagen settlement.

Allow direct-to-consumer automotive sales:

States that allow direct-to-consumer sales have quickly become EV market leaders, as well as gaining a competitive advantage in recruiting EV manufacturing facilities, jobs, and investments.

Adopt the Advanced Clean Trucks (ACT) program:

Join other U.S. states that have already adopted zero-emission vehicle standards to accelerate the manufacturing and annual sales of electric trucks and buses.

Adopt statewide "EV-ready" building codes:

Deliver dramatic cost savings to home and building owners, even if they don't plan to install charging stations right away. Retrofits can be 4 to 10 times more expensive.

Offer innovative EV financing programs and rebates

Join more than 20 states that offer innovative financing programs or rebates to increase adoption of EVs to save citizens money and reduce pollution.

EV ADVOCATES

North Carolinians drive over 382 million miles every day, with the average citizen driving 36.4 miles per day – and this is even higher for rural citizens. This alarmingly high level of driving has made the transportation sector the largest source of carbon pollution in the state – contributing to respiratory illnesses and heart disease – and creates an economic burden for families that face high gas prices. Furthermore, because North Carolina purchased over 5.6 billion gallons of imported gasoline in 2020, transitioning to electric transportation represents a significant opportunity for financial savings as well as economic growth and innovation with new EV and battery manufacturers, jobs, and investments.

RECOMMENDED ACTIONS

Consider an Electric Vehicle

Schedule a test drive at your local dealership.

- Electric vehicles save North Carolinians money. (CONSUMER REPORTS, 2020)
- EVs provide instant torque and are fun to drive .
- EVs will continue to get cleaner as North Carolina reduces carbon emissions at power plants, as required by the Energy Solutions for North Carolina Act.

Use Your Voice

Let your elected officials know that they should support transportation electrification by taking the following policy actions:

Adopt the Advanced Clean Trucks (ACT) program:

- Join other U.S. states that have already adopted zero-emission vehicle standards to accelerate the manufacturing and annual sales of electric trucks and buses.

Allow direct-to-consumer automotive sales:

- States that allow direct-to-consumer sales have quickly become EV market leaders, as well as gaining a competitive advantage in recruiting EV manufacturing facilities, jobs, and investments.

Adopt statewide "EV-ready" building codes:

- Deliver dramatic cost savings to home and building owners, even if they don't plan to install charging stations right away.
- Retrofits can be 4 to 10 times more expensive.

Offer innovative EV financing programs and rebates:

- Join more than 20 states in offering innovative financing programs or rebates to increase adoption of EVs to save citizens money and reduce pollution.
- Consider adopting additional pro-transportation electrification policies such as equitably designed state point-of-sale rebates and Clean Car Standards.

Sign the Pledge

Show support for EVs and pledge to make your next car electric.

Sign here:
gen180.org/pledge

Become an EV Ambassador

Join Generation180 and our network of EV advocates to support transportation electrification across North Carolina.

Learn more here:
gen180.org/ev-ambassadors

Experiences With EVs Affect Attitude and Desire

Americans who have experience with EVs, including simply being a passenger in one, are more likely to be interested in purchasing one. Overall, only 7 percent of Americans have driven an EV in the past 12 months, whereas 20 percent of those who say they would definitely buy/lease an EV as their next vehicle have driven one. (CONSUMER REPORTS, 2020)

DEALERSHIPS

BENEFITS

Greater Choice for North Carolinians

- Lack of EV inventory at North Carolina auto dealerships is a major impediment to adoption.
- A survey of North Carolinians found that 52% are likely or very likely to consider an EV for their next car. (GENERATION180, 2022)

Numerous Customer Benefits

- The wide range of EV benefits appeals to a diverse customer base.
- Due to the lower cost of ownership, wider EV adoption will save North Carolinians money. (CONSUMER REPORTS, 2020)
- EVs provide instant torque, are fun to drive, and are increasingly available in numerous vehicle segments.

Every North Carolinian Benefits from Wider EV Adoption

- Economy: Accelerating N.C.'s EV adoption is a catalyst for economic growth and innovation.
- Health: Adoption of EVs reduces the overall health burden related to vehicle emissions. (NCDEQ, 2022)
- Transitioning to EVs will reduce the financial impact that international conflicts can have on gas and oil expenses.

RECOMMENDED ACTIONS

Engage with Your Manufacturer

Approximately 100 new or refreshed EVs will come to market through 2024. (AUTOMOTIVE NEWS, 2020)

- Request sufficient and sustained inventory of EVs, sending a message to both the original equipment manufacturer and the customer.
- Request specific EV and infrastructure training for existing and future EV products while empowering salespeople to become EV experts.

Act as an EV Advocate

Dealers are uniquely positioned as the primary point of contact with the consumer.

- Offer EV test drives and educational events for prospective customers.
- Partner with organizations (like Generation180) to share best practices with other dealerships and leverage communities of EV owners to help prospective buyers mitigate concerns.

Engage with N.C.'s Policymakers

- Support legislation that will increase the availability of EVs for consumers.
- Maximize the effective implementation of federal infrastructure and transportation laws and Volkswagen Settlement funds to increase charging infrastructure across North Carolina.
- Support the adoption of the Advanced Clean Trucks (ACT) program to ensure that North Carolina dealerships and consumers receive adequate supply of electric trucks and buses from manufacturers.
- Support and offer innovative financing programs or rebates to increase adoption of EVs, which will save citizens money and reduce pollution.

APPENDIX

This report highlights the key findings from a survey designed to explore benefits, barriers, and policies of electric vehicles among North Carolina residents. This survey was conducted online (via desktop and mobile) from May 26 to June 16, 2022, with a sample and platform provided by the national market research firm Dynata, one of the largest market research suppliers in the world, using their proprietary market panel. The analysis is based on a representative sample of 1,202 North Carolinians aged 18 and older; it is representative of the state of North Carolina for the purposes of better understanding perceptions around electric vehicles and clean energy.

DEMOGRAPHICS

The reported gender composition of respondents was 52% female, 47% male, and 1% non-binary/other. Among respondents, 13% were ages 18-24, 24% were ages 25-34, 25% were ages 35-44, 18% were ages 45-54, and 19% were ages 55 and over. The highest educational attainment of respondents was as follows: 1% completed some high school; 20% graduated from high school or obtained a GED; 27% completed some college; 32% graduated college; 20% completed postgraduate work or a postgraduate degree; and 1% preferred not to answer. The distribution of 2021 gross household incomes was: Less than $25,000 - 17%; $25,000 to $50,000 - 27%; $50,000 to $75,000 - 20%; $75,000 to $100,000 - 12%; $100,000 to $150,000 - 14%; $150,000 to $200,000 - 5%; More than $200,000 - 5%.

Have you ever shopped for an electric vehicle?

YES	28%
NO	72%

Do you currently lease or own an electric vehicle or plug-in hybrid vehicle?

YES	16%
NO	84%

How much have you seen, read, or heard about electric vehicles?

A LOT	33%
SOME	48%
NOT MUCH	15%
NOTHING AT ALL	4%

Given what you know about electric vehicles, what perception do you have of them?

VERY POSITIVE	30%
SOMEWHAT POSITIVE	34%
NEUTRAL	22%
SOMEWHAT NEGATIVE	8%
VERY NEGATIVE	5%

How likely are you to consider an electric vehicle for your next car?

VERY LIKELY	25%
SOMEWHAT LIKELY	28%
NEUTRAL	19%
NOT VERY LIKELY	16%
NOT AT ALL LIKELY	13%

Of respondents who are likely to consider an EV for their next car, what timeframe do you expect your next, hopefully, electric, car purchase to be?

0 – 2 YEARS	47%
3 – 5 YEARS	39%
6 – 7 YEARS	10%
8 – 10+ YEARS	4%

Some U.S. states offer financial incentive support for individuals who buy or lease electric vehicles. Do you support or oppose North Carolina offering such an incentive?

STRONGLY SUPPORT	41%
SUPPORT	27%
NEUTRAL	21%
OPPOSE	5%
STRONGLY OPPOSE	5%

North Carolinians purchased over 5.6 billion gallons of imported gasoline in 2020. How important is it to you that North Carolina reduce its dependence on fossil fuels and transition to clean energy?

VERY IMPORTANT	40%
SOMEWHAT IMPORTANT	28%
NEUTRAL	22%
NOT VERY IMPORTANT	6%
NOT AT ALL IMPORTANT	5%

What is the greatest barrier to you in considering an electric vehicle?

PRICE	47%
AVAILABILITY OF CHARGING OPTIONS	18%
DRIVING RANGE	17%
INFORMATION ABOUT ELECTRIC VEHICLES	6%
PRODUCT AVAILABILITY	4%
OTHER	7%

Would you support a North Carolina state policy that required auto manufacturers to provide a minimum number of new electric vehicles for sale in North Carolina, and gradually increase the number each year, making more models of electric vehicles accessible to North Carolina consumers?

STRONGLY SUPPORT	28%
SUPPORT	30%
NEUTRAL	28%
OPPOSE	7%
STRONGLY OPPOSE	7%

Do each of the following factors make you more likely, less likely, or make no difference at all when thinking about purchasing an electric vehicle?

Better for the environment

MUCH MORE LIKELY	38%
SOMEWHAT MORE LIKELY	30%
NO DIFFERENCE	24%
SOMEWHAT LESS LIKELY	3%
MUCH LESS LIKELY	4%

Financial incentives / discounts

MUCH MORE LIKELY	37%
SOMEWHAT MORE LIKELY	36%
NO DIFFERENCE	21%
SOMEWHAT LESS LIKELY	2%
MUCH LESS LIKELY	3%

Savings on maintenance and fueling cost

MUCH MORE LIKELY	44%
SOMEWHAT MORE LIKELY	31%
NO DIFFERENCE	18%
SOMEWHAT LESS LIKELY	3%
MUCH LESS LIKELY	4%

Energy independence

MUCH MORE LIKELY	33%
SOMEWHAT MORE LIKELY	33%
NO DIFFERENCE	27%
SOMEWHAT LESS LIKELY	2%
MUCH LESS LIKELY	5%

Access to public charging stations

MUCH MORE LIKELY	37%
SOMEWHAT MORE LIKELY	31%
NO DIFFERENCE	21%
SOMEWHAT LESS LIKELY	6%
MUCH LESS LIKELY	5%

Variety of models available (sedans, SUVs, pick-up trucks, etc.)

MUCH MORE LIKELY	33%
SOMEWHAT MORE LIKELY	35%
NO DIFFERENCE	27%
SOMEWHAT LESS LIKELY	3%
MUCH LESS LIKELY	3%

Ability to charge at work

MUCH MORE LIKELY	33%
SOMEWHAT MORE LIKELY	31%
NO DIFFERENCE	28%
SOMEWHAT LESS LIKELY	3%
MUCH LESS LIKELY	4%

Higher upfront purchase price than gas cars

MUCH MORE LIKELY	16%
SOMEWHAT MORE LIKELY	15%
NO DIFFERENCE	24%
SOMEWHAT LESS LIKELY	27%
MUCH LESS LIKELY	18%

Ability to charge at home

MUCH MORE LIKELY	44%
SOMEWHAT MORE LIKELY	27%
NO DIFFERENCE	21%
SOMEWHAT LESS LIKELY	3%
MUCH LESS LIKELY	4%

New jobs and economic development opportunities

MUCH MORE LIKELY	23%
SOMEWHAT MORE LIKELY	32%
NO DIFFERENCE	37%
SOMEWHAT LESS LIKELY	3%
MUCH LESS LIKELY	4%

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