ATLAS PUBLIC POLICY
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SOUTHERN ALLIANCE FOR CLEAN ENERGY
KNOXVILLE, TN USA

TRANSPORTATION ELECTRIFICATION IN THE SOUTHEAST

State of Technology Deployment & Investment in Manufacturing

AUGUST 2021
TOM TAYLOR, ATLAS PUBLIC POLICY

Contents

Executive Summary

Positive EV Policies Can Pave Way for Significant Growth

Around the country, electric vehicles (EVs) are at the center of policy debates. Congress seems set to pass significant funding for EVs and though the scope of this funding is still to be finalized, it is likely to mean billions of dollars in federal investment in infrastructure and vehicle deployment—far greater than any federal funding to date. In August 2021, U.S. Environmental Protection Agency and National Highway Traffic Safety Administration released tightened emissions standards that are closer in line with the standards set during the Obama Administration. Executive Order 14037 by President Biden established a voluntary target of 50 percent of all new vehicles sold in 2030 to be electric (or plug-in hybrid).

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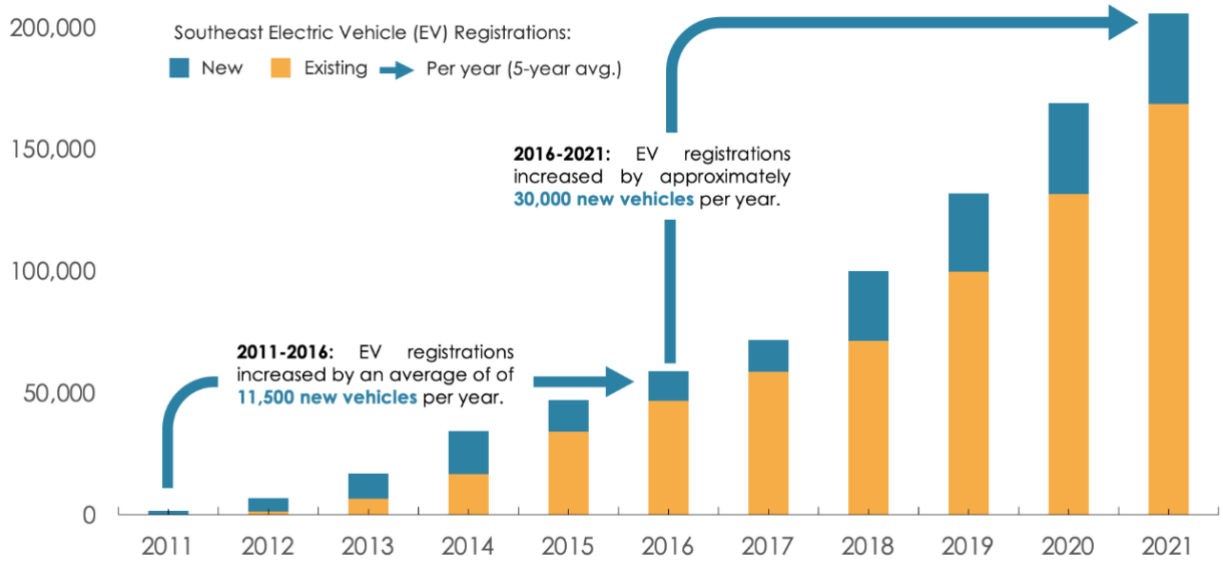
Southeast EV Sales Increase, Lags in Per Capita Sales

There's a long way to go in the coming decade to reach these ambitions. While EV sales have boomed in 2021—national sales are doubling previous monthly records—just over four percent of all light duty vehicle sales were electric in the second quarter of 2021. June 2021 saw monthly sales 10,000 higher than any previous month, reaching more than 66,000 EVs sold. Tesla remains a market leader with around 40 percent market share in the second quarter of 2021, down slightly from the end of 2020. June 2021 saw monthly sales 10,000 higher than any previous month, reaching more than 66,000 EVs sold. As the size of the market grows, more models create competition and choice. Across the Southeast, comprising of Alabama, Florida, Georgia, the Carolinas, and Tennessee, sales continue to increase but the region lags the national average.

Figure 1: Southeast Plug-in Electric Vehicle Registrations



Source: SACE

State Investment in EV Charging Infrastructure could Supercharge Transportation Electrification

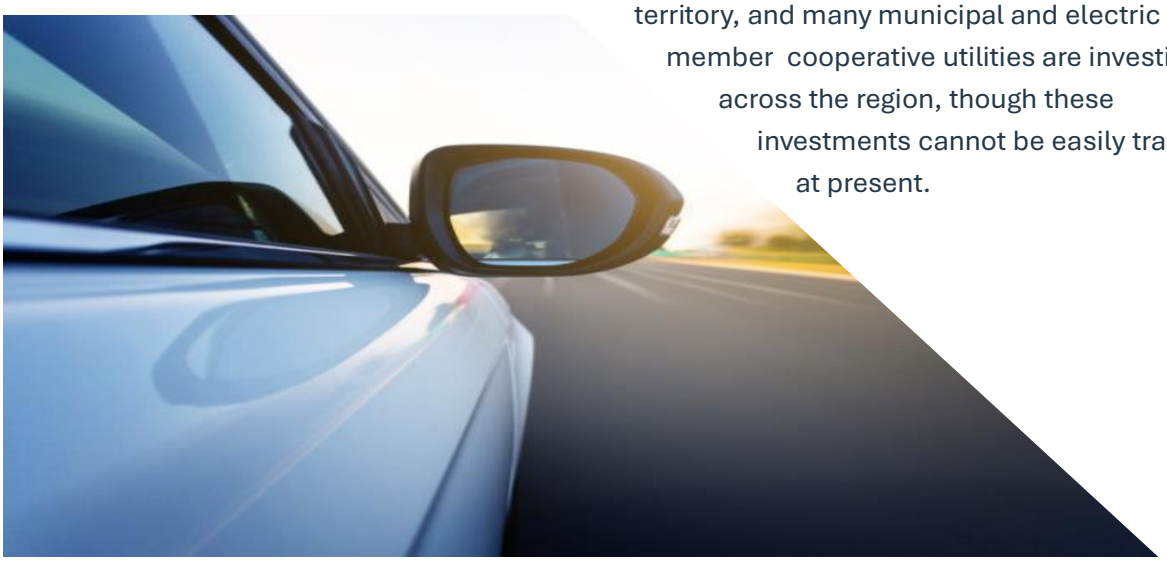
Charging infrastructure is crucial to ensure the United States can move to and beyond the sales targets set by the Biden Administration. The Southeast continues to deploy new charging equipment but with 18 percent of the national population, the region is still home to just 14 percent of charging infrastructure. To increase the rate of charging infrastructure, state governments have overseen the investment of funds and will need to invest more. State governments continue to leverage the Volkswagen (VW) Settlement Funding and the Federal Transit Administration's Low or No Emissions (Low-No) Program funding. To date, 55 percent of the Southeast's Settlement funding has been awarded to projects dedicated to transportation electrification, which comes in above the 53 percent awarded nationally for the same projects.

Supportive State Policies and Plans will Drive EV Growth

The state policy landscape also varies across the region and lacks many of the supportive EV policies driving market growth around the country. North Carolina has been the most active in terms of joining regional agreements and has more policies to support EVs than other jurisdictions. North Carolina and Tennessee have developed state EV plans, and Florida and South Carolina are following suit. Only Florida and Tennessee permit all EV manufacturers to sell directly to consumers and service vehicles in-state, while other states in the region limit or prohibit direct consumer access. Besides Florida, Southeast states all charge EV fees to recover lost gasoline tax revenue. On average, these state fees are 16 percent greater than the national average for EV fees. This calculation only includes those states that charge a fee.

Utility Investment in Electrification Initiatives Grows

Utility investment has seen positive upward movement in the region over the past 12 months. In our 2020 report, we noted the investor-owned utilities across the Southeast trailed the rest of the country in investments in electrification initiatives. Since the last report, investor-owned utilities have been approved to make significant investments in North Carolina and Florida. In 2020 we reported utility approved investments of $32 million across the region. Total investor-owned utility approved transportation electrification investments are now over $130 million. In addition, the Tennessee Valley Authority, a federally owned power company, is supporting EVs in its service territory, and many municipal and electric member cooperative utilities are investing across the region, though these investments cannot be easily tracked at present.



EV Manufacturing Investment and EV Jobs Climb Higher in Southeast

The Southeast is home to much activity in the manufacturing of EVs and the EV supply chain. The region is now expected to receive more than 37 percent of all national EV manufacturing investment, up 66 percent from last year. Another 18 percent of all national EV jobs announced, up 33 percent from last year, are also expected to come from manufacturing. Large manufacturing sites continue to open across the Southeast with the notable exception of Florida. These indicators for the Southeast are summarized in Figure 2.

Figure 2: Southeast EV Indicators through July 2021

Manufacturing Employment
- Jobs: 7,785
- 18% of national total
- 33% increase over the past 12 months

Manufacturing Investment
- Investment: $11.1 billion
- 37% of national total
- 66% increase over the past 12 months

Sales
- 206,000 sales
- Southeast has 10% of national total
- 46% increase over the past 12 months

Charging Deployment
- Level 2: 12,872 ports
- DCFC: 2,504 ports
- Total: 15,376 ports
- 14% of national total
- 57% increase over the past 12 months

Utility Investment
- Approved: $130 million
- Pending: $59 million
- 4% of national total
- 306% increase over the past 12 months

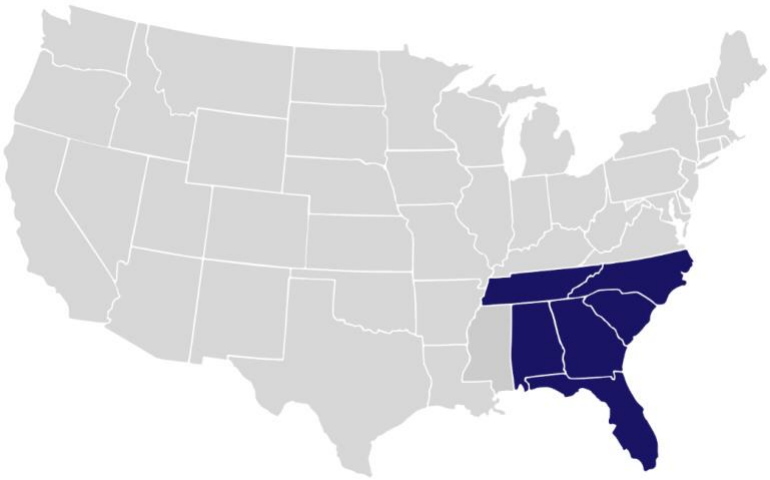
Government Funding
- Total: $179 million
- VW Settlement Funding Remaining: $257 million
- 6% of national total
- 111% increase over the past 12 months

EV manufacturing investment represents commitments made to specific facilities in the Southeast. Total investment figures represent all high-level commitments from automakers, startups, and other manufacturers.

Source: Atlas EV Hub.

Introduction

In October 2020, Atlas Public Policy and the Southern Alliance for Clean Energy (SACE) released the Annual Report on Transportation Electrification in the Southeast [1]. Since that report, there has been much activity in transportation electrification—EV sales have surged, the federal government has announced rules and standards, and new EV models have been introduced or announced. Given the pace of change, there is a need to update progress and highlight gaps within the Southeast as compared with the rest of the country.



State Profiles

Alabama
Florida
Georgia
North Carolina
South Carolina
Tennessee

This report defines key indicators that outline the state of transportation electrification in Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee (collectively the 'Southeast'). This report tracks progress in the region against several indicators including investment and employment related to EV manufacturing, deployment of passenger EVs and EV charging, and government and electric utility funding for transportation electrification. This report also includes information on policies and initiatives to promote clean transportation and key opportunities in each state to further advance the clean vehicle market across the region.

Just as important as the tracking of key metrics is to note the co-benefits presented by the clean energy transition. These include economic benefits to the region, improved air quality, especially for Black, Indigenous, and people of color (BIPOC) communities, and the potential for reduced energy burdens, particularly for low- and moderate-income (LMI) populations. The Southeast is characterized by urban centers surrounded by broad swaths of rural areas. The Southeast is also home to large BIPOC and LMI populations that experience higher exposure to air pollution, have significant energy burdens, and are more vulnerable to impacts from climate change. Thus, there is a pressing need to center transportation and clean energy solutions that deliver co-benefits.

Acknowledgement: This report was supported by the Southern Alliance for Clean Energy.

About the Data

Data used to develop this report derives from the Atlas EV Hub: www.atlasevhub.com, which tracks the metrics described below.

Passenger EV Manufacturing Employment: This indicator represents the number of direct manufacturing jobs associated with the production of passenger EVs and medium- and heavy-duty (MDHD) vehicle manufacturers. This figure is tied to specific facilities and is typically reported directly by vehicle manufacturers in press releases. In some cases, jobs tied directly to EV production are not publicly reported by manufacturers. The data used in this report are through July 2021.

EV Manufacturing Investment: This refers to the funds committed by vehicle manufacturers and other private companies to support the development of EVs. Total investment figures include investments committed for light-, medium-, and heavy-duty vehicles as well as EV charging. This is often reported in coordination with jobs announcements and state-based investments are typically tied to specific facilities. The data used in this report are through July 2021.

New EV Sales: Refers to Passenger EV sales from IHS Markit (2019-present) and the former Alliance for Automobile Manufacturers (2011-2018). The EV sales data for all states are available by vehicle make and model since 2019 and include all-electric, plug-in hybrid electric, and all passenger vehicles. Sales data refers to the sale of new vehicles only. Deployment of electric MDHD vehicles is still small and therefore not included in this update. The data used in this report are through June 2021.

Electric Utility Investment: EV-related investments are derived from investor-owned electric utility filings submitted to state regulatory commissions. This includes EV charging rate programs and pilots, which typically do not propose additional investment by the utility. The investment data includes both EV programs proposed by utilities that await commission approval as well as investment that has been approved or denied by commission orders. This report also notes self-reported investments from some public utilities. The data used in this report are through July 2021.

Government Funding for EVs: These data are derived from an aggregation of all federal, state, and local government funding programs dedicated to transportation electrification, including funding allocated through the Volkswagen Settlement as well as programs administered by the federal government. The data used in this report are through July 2021.

EV Charging Deployment: Data on passenger EV charging infrastructure deployment comes from the U.S. Department of Energy's Alternative Fuel Station Locator. This dataset includes information on station location, charging type (Level 2 or DC fast-charging), and charging network (e.g., ChargePoint, Greenlots, and EVgo) in addition to several other data points. In February 2021, Atlas changed our methodology for counting DC fast charging ports to only count ports that can be used concurrently. This change in methodology resulted in an overall decrease in the number of fast charging ports by no longer counting a charging station with both CHAdeMO and SAE Combo ports as two ports. This new methodology was made possible by supplemental data provided to us by the National Renewable Energy Laboratory. These numbers are updated frequently, and the data used in this report are through July 2021.

Benefits of Transportation Electrification

Transportation electrification has the potential to benefit the Southeast across a number of indicators. The list below highlights some of the primary benefits related to EV adoption not covered in depth by this report.

Public Health Benefits

The air pollution reduction from transportation electrification—and the corresponding benefits for community health—are significant. A 2020 report by the American Lung Association quantified the health benefits, emissions reductions, and healthcare savings of transitioning to electric cars, trucks, and buses [2]. The report estimates that shifting to an all-electric fleet by 2050 would save up to 6,300 lives and up to $72 billion in avoided healthcare costs across the country. The Southeast would save up to $9.3 billion in healthcare costs by 2050 with an all-electric fleet [3].

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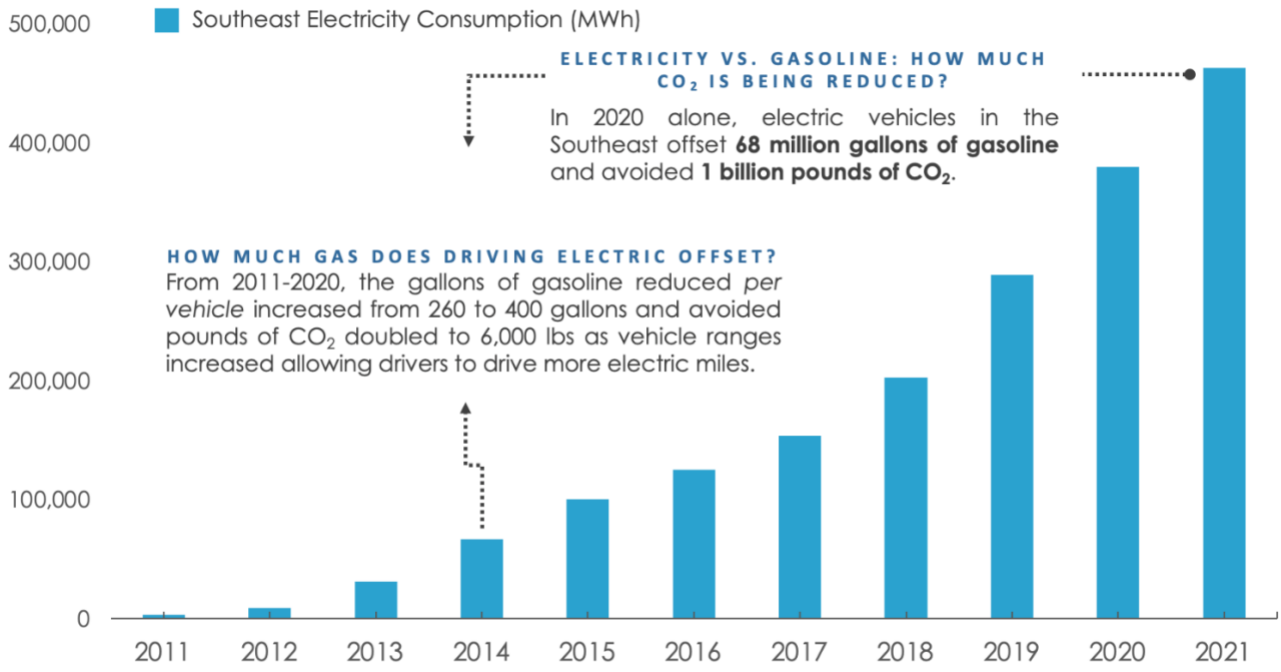
EVs Have the Potential to Shift Electric Load to Lower Cost Time Periods

EV adoption can help reduce the cost to maintain the electrical grid while creating an increased demand for electricity generated regionally. EV drivers using time-of-use (TOU) rates can help utilities reduce the average cost of delivering electricity, which can be a benefit to all ratepayers. Drivers with TOU rates are more likely to shift EV charging to off-peak times to save money on charging. More EVs on the road that take advantage of TOU rates helps mitigate grid strain during peak hours when the grid faces the greatest stress [4]. Even without universal TOU rates, EV adoption is beneficial for utilities, with total revenues outweighing expenditures. Notably, between 2012 and 2019, revenues from EV drivers under California's two largest investor-owned utilities surpassed costs by $806 million [5]. In this way, EVs can benefit all state ratepayers writ large if revenue exceeding costs are returned to ratepayers in the form of lower rates or reinvested to improve safety and reliability, environmental performance, or other facets of the grid.

Emissions Reductions

Climate change continues to threaten the way of life across the Southeast in a number of ways, including extreme weather events, sea-level rise, agricultural production changes. The hurricane season in 2020 saw a record-breaking 30 named storms in the region [6]. Given that transportation is the largest contributor to greenhouse gas emissions in the Southeast, as it is nationwide, EVs are a crucial part of climate change mitigation [7]. EVs have no tailpipe emissions, and generating the electricity used to charge an EV emits fewer greenhouse gases compared to gasoline on an energy equivalent basis because of the inherent efficiency of EVs. A study from ICCT in July 2021 found that electric vehicles have at least 60 percent lower greenhouse gas emissions than internal combustion engine vehicles and this will only increase over time [8]. Nationwide, driving an EV is equivalent to driving a gasoline-powered vehicle with a fuel economy of 88 miles per gallon [9]. For reference, the new federal Executive Order 14037 aims for a minimum fuel economy of 52 miles per gallon by 2026 [10].

Figure 3: Southeast Electricity Consumption



This graph captures the relationship between electric miles driven and the corresponding reduction in carbon emissions.

Source: SACE

EVs Can Save Money for Consumers

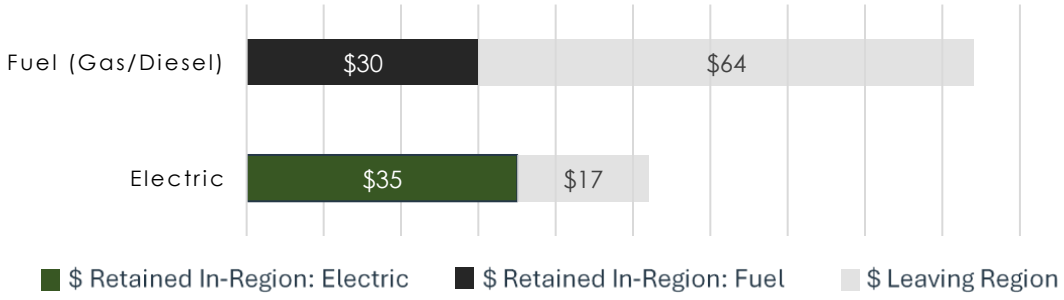
Consumer Reports published in 2020 a white paper calculating the potential maintenance costs savings for EV drivers [11]. Their analysis from thousands of Consumer Reports members shows that EV owners pay half as much as gasoline vehicle owners to repair and maintain their vehicles. The analysis estimates that EV drivers spend $0.03 per mile on maintenance, compared to $0.06 per mile for drivers of gas-powered vehicles. Over the life of the vehicle, an EV will save the typical driver $6,000 to $10,000 compared to a comparable gas-powered vehicle.

Positive Economic Impact for the Region

Greater EV adoption has the potential to deliver significant economic benefits to the Southeast. When sold to drivers, a portion of gasoline and diesel fuel sales leave the region to pay for part of the fuel supply chain outside of the state where the fuel is produced or sold. Southeast consumers spend approximately $94 billion on gas and diesel fuels annually. Only 32 percent of consumer dollars spent—approximately $30 billion— may benefit the region's economy, and the rest leaves to help pay for extraction, production, refining, and delivery of the fuels.

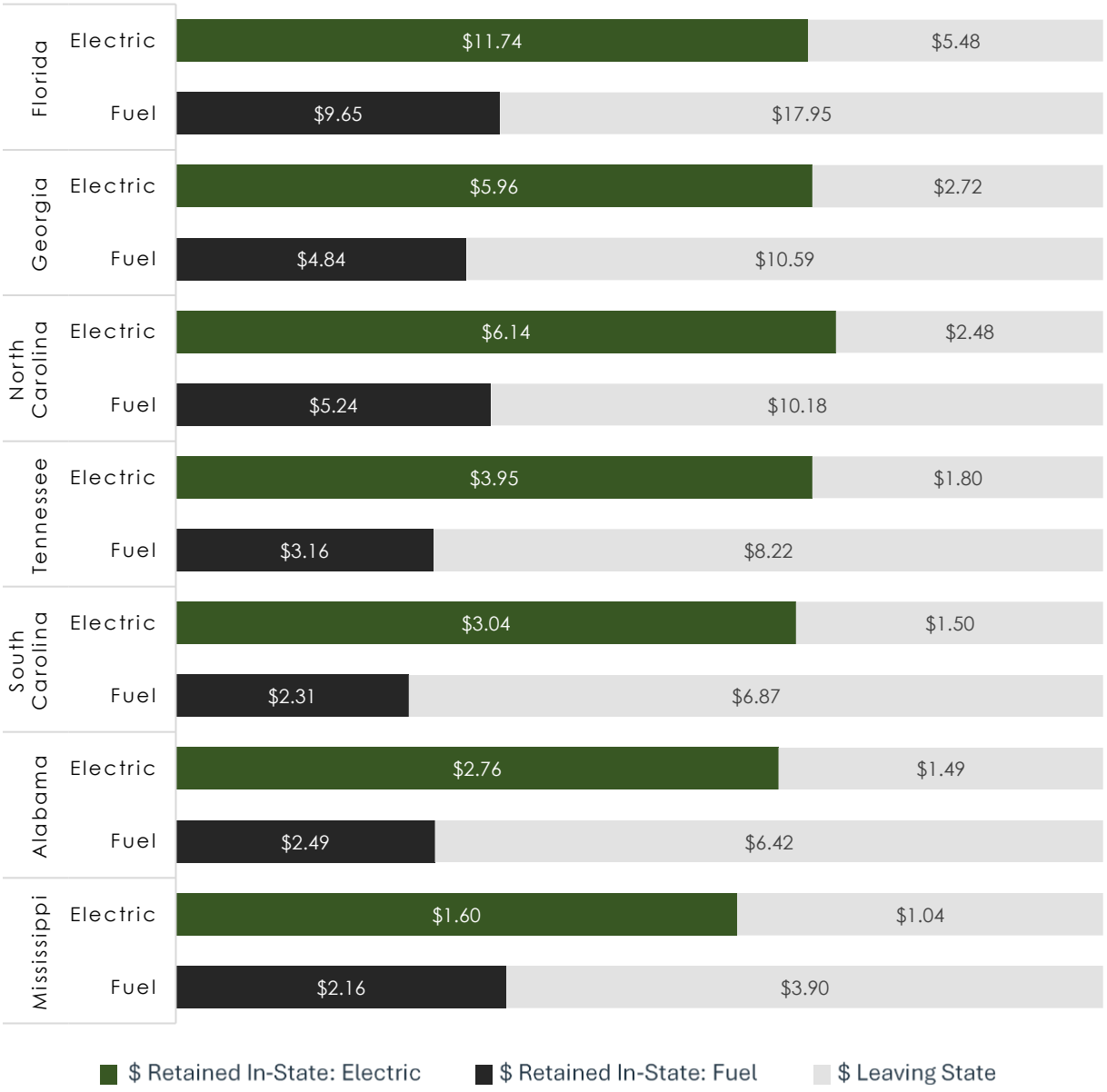
SACE carried out an analysis in August 2021 to calculate the potential economic effects in the region of transportation electrification. As light-, medium-, and heavy-duty vehicle electrification accelerates, more efficient and cheaper in-state generated electricity allows consumers to spend less to drive the same number of miles. If 100 percent of the region's vehicle miles traveled were electric today, Southeast consumers would save approximately $42 billion on fuel annually. Additionally, 68 percent of the money spent on electricity for transportation—approximately $35 billion—would stay in the region (see Figure 4). That means that a net amount of $47 billion annually could stay in the Southeast by electrifying the region's transportation.

Figure 4: Expenditures Retained in Southeast Region vs. Lost, by Fuel (Billions $, 2019)



Source: SACE

Figure 5: Expenditures Retained In-State vs. Leaving State, by Fuel Type (Billions $, 2019)



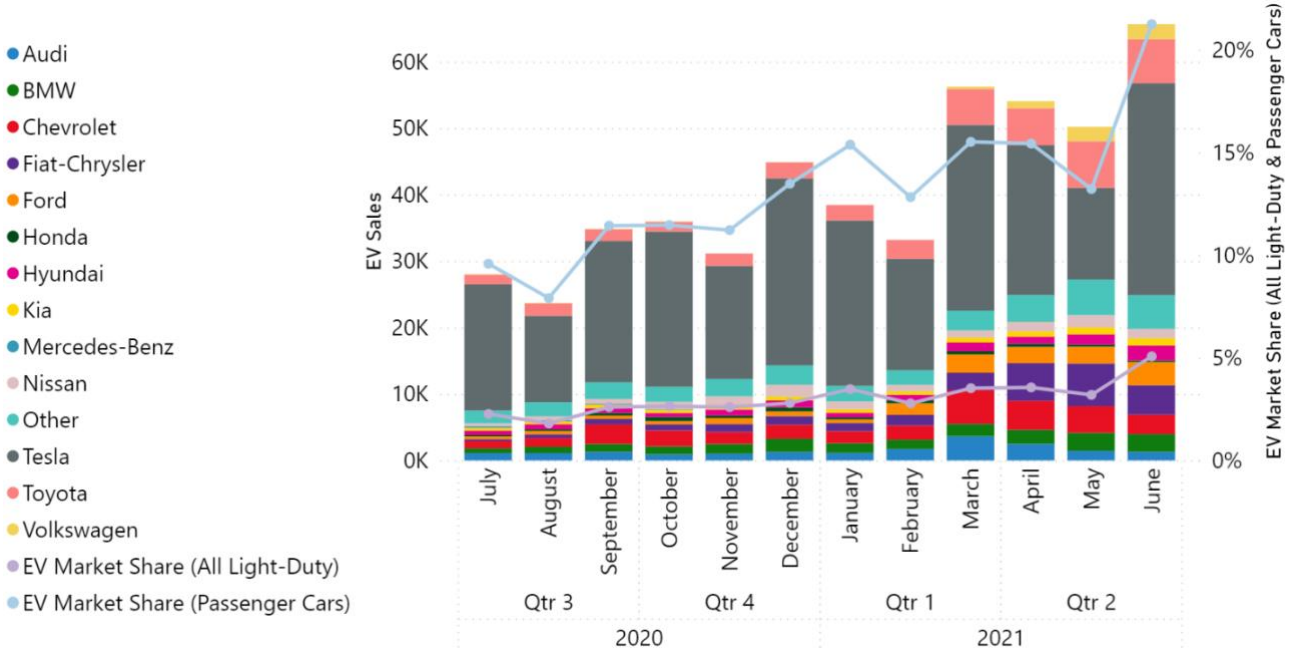
Source: SACE

National Landscape

At the time of writing, the COVID-19 pandemic continues to spread across the country. The social and economic toll on the Southeast is significant as the pandemic looms large over the economy and the EV industry. The trajectory of the pandemic could continue to shift, impacting supply chains, policy priorities, and consumer confidence.

Despite uncertainties, the EV market has grown significantly in the first two quarters of 2021. In June 2021, cumulative sales ticked over two million vehicles across the country. Sales for the first months of 2021 have all risen above 50,000, doubling monthly sales records in the country. Importantly, sales of EVs continue to climb as a proportion of all vehicle sales, reaching more than four percent of all light-duty vehicle sales in the second quarter of 2021.

Figure 6: EV Sales from July 2020 through June 2021



This graph shows sales since 2019 and we can see the changing market composition over time as more models and makers enter the market. In Q2 2021, the EV market posted its highest quarter on record with EVs reaching more than four percent of all light duty vehicle sales. Broadly, all auto sales (EVs and internal combustion engines) were up 47 percent in Q2 compared to 2020.

Source: Atlas EV Hub, IHS Markit, and U.S. Bureau of Economic Analysis.

Over the past 12 months, auto manufacturers have announced ambitious plans to electrify their vehicles, further building momentum towards electrifying transportation. Joining General Motors and Ford with significant pledges to electrify, Stellantis (owner of Jeep and other well-known

brands) has indicated that they are invested in electric with a $35 billion commitment in July 2021. Earlier, in May, Hyundai announced that at least $7.4 billion of its total planned $87 billion global EV investment will be invested in the United States [12]. The same month, Subaru unveiled its first all-electric model planned for 2022 [13] and Rivian looks to deliver to market America's first electric pickup in September of 2021 [14]. Finally, Mercedes announced in July 2021 that it would electrify half of its sales (including plug-in hybrids) by 2025 rather than 2030 as originally proposed [15].

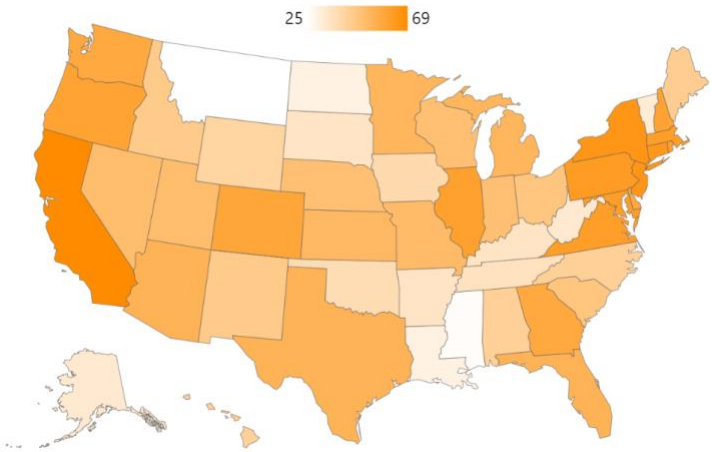
Table 1: Auto manufacturers that have announced a zero-emissions sales commitment

Manufacturer	Global EV Investment	100% EV Sales Commitment Date
BMW	$7 billion	Mini-brand to be EV by 2030
Ford Motor	$37 billion	2030
General Motors	$38 billion	2035
Honda	$545 million	2040
Hyundai	$87 billion	2040
Nissan	$12 billion	2025 (in China)
Tata Motors	$18 billion	Electric-models available for the whole range by 2030
Volkswagen	$99 billion	2033
Zhejiang Geely Holding Group Co., Ltd	$6 billion	2030

Source: Atlas EV Hub.

The number of passenger models available in the EV market continues to grow. In 2010, there were just two models available on the market and in June 2021, there were 71 models sold including 26 battery electrics and 45 plug-in hybrids. This is an increase of eight new models since the release of the 2020 Report. An additional 77 U.S. models have been announced to come onto the market over the coming years.

Figure 7: EV Models Offered for Sale by State



Vehicles offered for sale by state with California leading the way with 69 models. A vehicle may be offered for sale but not necessarily available on an automotive dealer lot.

Source: Atlas EV Hub and Plug in America.

The federal government seems poised to spur investment in sustainable mobility with multiple callouts to vehicle electrification and infrastructure upgrades. Two bills would each pour critical investment into transportation electrification:

- The INVEST in America bill includes $13.1 billion in dedicated investment in EVs (including batteries). The $7.5 billion for EV charging is half what the Biden Administration proposed and the $5 billion for zero-emissions school buses (including low emissions buses) is far from the $20 billion Biden initially requested for electric school buses [16].
- The Budget Resolution Agreement Framework is currently valued at $3.5 trillion. Though there is little detail currently available on the components of the bill, there is a possibility that funding will be allocated to transportation electrification.

This funding has the potential to significantly grow the EV market in the United States and across the Southeast. For reference, cumulative levels of investment in EVs from utilities and government totals less than $5 billion nationwide [17].

In August 2021, President Biden signed Executive Order 14037 which has two key elements [18]:

- Strengthen the vehicle standards from U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA). The standards had been updated by the Obama Administration through 2025, weakened by the Trump Administration, and are now expected to be strengthened again by the Biden Administration. Following agency action, the standards will return to Obama-era fuel economy and emissions standards with stricter standards to be introduced from 2026 [10].

- Set a target for EV sales. The Executive Order included a voluntary agreement from most of the nation's largest automakers to commit to a target of 50 percent of all sales to be electric by 2030 (the agreement included plug-in hybrids). This agreement sends a strong signal to industry on the near-term priorities of the federal government.

This Executive Order provides a clear vision for the future of the industry and in the case of the vehicle fuel economy and emissions standards, provides an enforceable standard from NHTSA and EPA.

Importantly, other modes of transport continue to innovate with electric transportation. In August 2021, DHL announced the purchase of 12 electric planes to transport packages [19]. The Investing in a New Vision for the Environment and Surface Transportation (INVEST) in America bill set aside funding for electric ferries [20]. As of August 2021, there are now just over 2,000 MDHD EVs across the United States [21]. Bus electrification is an increasing priority, particularly the school bus fleet, which makes up 80 percent of buses around the country. There is up to $5 billion in the INVEST in America bill to purchase low and zero-emissions school buses [20]. The infusion of school bus funds builds on the $608 million in transit bus deployment funded through the federal Low or No (Low-No) Emission Program run by the Federal Transit Administration [22].[1]

State and local governments have also led with important investments, targets, and legislation. For instance, New Jersey has pushed hard for transportation electrification including electrification of trucks – the state has proposed that a third of all sales as EVs by 2030 [23]. New Jersey joins many other states and local governments in taking up the challenge of electrifying vehicles as part of California's low-emission vehicle and zero-emission vehicle (ZEV) regulations. Washington and Virginia have already begun to implement ZEV goals through legislation [24]. In June 2021, Colorado passed a number of policies to encourage EV use including funding for EV charging for state fleet vehicles, EV license plates, and new sources of dedicated transportation electrification funding.

Nationwide, public funding, including federal money administered by states over the last 12 months, has seen $918 million invested in transportation electrification [25]. Most of this funding has gone to school and transit buses, large trucks, and light-duty EV charging infrastructure.

In the Southeast, Alabama, North Carolina, and Tennessee developed EV plans, and Florida and South Carolina have planning underway [26] [27] [28]. Likewise, Governor Kemp stood up the Electric Mobility and Innovation Alliance in Georgia to advance transportation electrification economic development [29] [29].

With growing pressure and commitments to electrify vehicles, more increased attention has been focused on the charging infrastructure necessary to support widespread EV adoption. Of investments in charging infrastructure in the United States, utilities are one of the leading sources of funding. In the last 12 months, utilities have announced $947 million approved and $323

[1] The Low or No Emission Program provides funding for state and local governments to buy or lease ZEV or low emissions buses and facilities.

pending for transportation electrification. This is up from $805 million approved and $185 million pending during the same period last year. With an 18 percent increase in approved utility investments and a 75 percent increase in pending funding, these are strong indicators of year-over-year growth.

Volkswagen (VW) Settlement[2] funding continues to fund projects around the country. Since the last report, $366 million has been awarded around the country, with $288 million of those awards going towards EVs or charging infrastructure. The total invested through the VW Settlement funding is $1.07 billion and of that, 53 percent has been invested in electrification initiatives. Two-thirds of the total funding has yet to be awarded —and so will continue to fund charging infrastructure around the country. Electrify America, created by Volkswagen out of the VW settlement, also continues to support the electrification process through four 30-month investment cycles totaling $2 billion.

As a region, the Southeast — comprising Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee — accounts for 18 percent of the national population per census data from 2020 [30]. As reported last year, the region is underrepresented in every major EV indicator other than EV manufacturing investment, as seen in Figure 2.

Meanwhile, gas prices are currently just under $3 per gallon on average in the Lower Atlantic Region [31], though there is consistent, considerable volatility in gas prices. Regardless, higher gas prices make the total cost ownership (TCO) for EVs more favorable. Even at low gas prices and residential electricity rates, EVs cost less to operate than internal combustion engines.

Transportation costs are a large part of high energy costs in disadvantaged communities and so reducing those costs through transportation electrification can reduce energy burdens. A report by the American Council for an Energy-Efficient Economy (ACEEE) found that Birmingham, Alabama has the highest energy burden costs of the cities they profiled around the country at 10.7 percent [32]. These burdens include not just electricity costs, but also expenditures on transportation, heating, and cooking. The costs fall disproportionately on Black Americans, “African Americans spend almost twice as much per square foot on energy as their white counterparts.” The impacts of pollution are also seen in BIPOC communities across the Southeast that are three times more likely to be breathing the most polluted air [33].

In 2020 and then in 2021, Americans experienced the impact of the changing climate firsthand. In the Southeast, North Carolina experienced its wettest year on record, and more named hurricanes made landfall than ever before [34]. Also in 2020, Hurricane Sally caused devastation across the Gulf Region, costing over $7.3 billion in damage to homes, businesses, and infrastructure [35]. Current and ongoing flooding in Middle Tennessee brought up to 17 inches of rain in less than 24 hours, causing loss of life and property [36].

[2] The Volkswagen Settlement refers to a $2.9 billion Environmental Mitigation Trust allocated proportionally to each state and to be administered by a court-appointed Trustee. The Trust allows for a 15 percent allocation to fund light-duty zero emission vehicle infrastructure.

In August 2021, the International Panel on Climate Change (IPCC) issued a critical report on the state of the changing climate around the world. The report was clear: transformational progress on emission reductions is essential to reduce the impacts of the climate crisis. Given that transportation emissions constitute the single largest source of GHG emissions in the Southeast, mitigation in the form of transportation electrification is crucial for preventing the worst impacts of climate change and delivering environmental justice for marginalized populations [7].

New EV Sales

Table 2: Summary of Sales of EVs Across the Southeast

State	EV Models for Purchase	Total EV Sales	% Of U.S. EV Sales Shown	EVs per 1,000 People	EVs per 1,000 People (at 2020 Report)[3]	% Change from 2020 Report in EVs per 1,000 People
Alabama	43	5,385	1.26%	1.1	0.77	42%
Florida	54	99,016	8.21%	4.74	3.13	51%
Georgia	58	49,982	3.02%	4.80	3.98	21%
North Carolina	43	29,270	2.8%	2.85	1.98	44%
South Carolina	47	7,892	1.33%	1.57	1.07	47%
Tennessee	36	14,230	1.79%	2.12	1.5	41%
United States	**49**	**2,050,673**	**100%**	**6.1**	**4.65**	**31%**

Source: Atlas EV Hub.

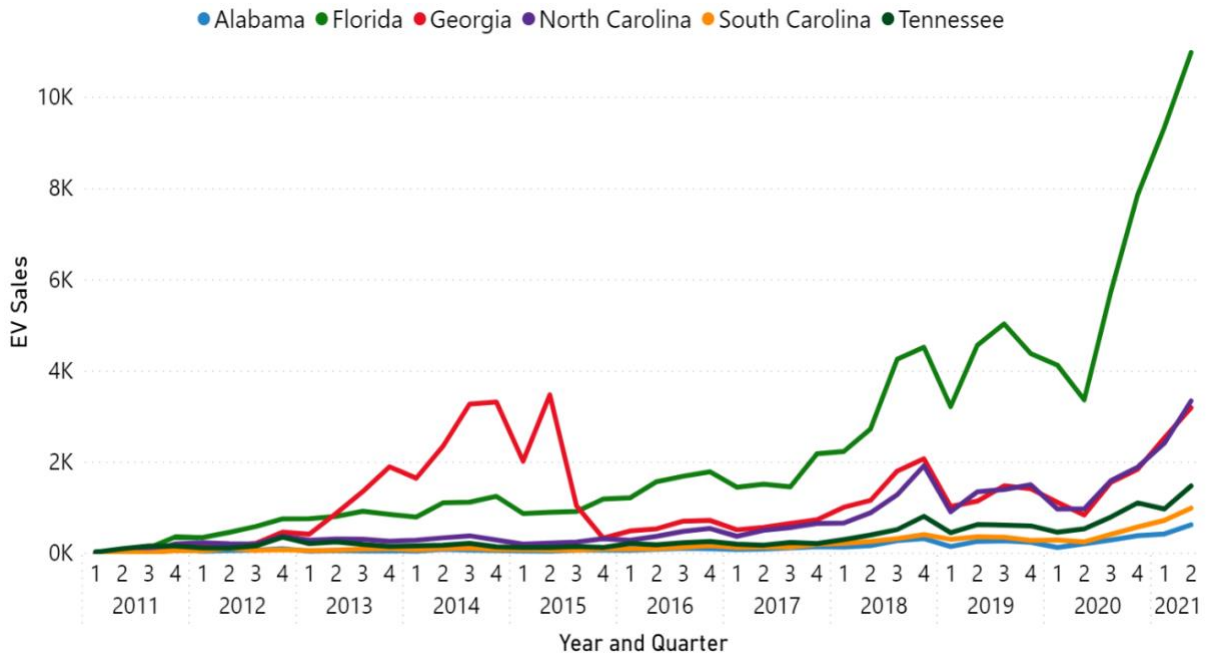
New EV sales have taken off in 2021. Florida and Georgia are the best ranked of the Southeast states in terms of EV sales per person with Georgia ranking 15th and Florida ranking 16th per 1,000 people in sales. Alabama ranks lowest of the Southeast states in sales per person and ranks 41st in the nation. South Carolina is not far ahead of Alabama, ranking 39th in the nation. The Southeast makes up 10 percent of all EV sales in the country, short of its population share of 18 percent and unchanged from 2020.

Overall, there is considerable growth in EV sales across the Southeast since August 2020. The largest sales increase was in Florida, with 51 percent growth, and then South Carolina with 47 percent. The growth is especially impressive in Florida given the baseline was already high there. Georgia had the lowest growth over that period (21 percent) though it still has the most cumulative

[3] Data through July in 2020.

sales of EVs per 1,000 people at 4.8, just larger than Florida at 4.74. Georgia's largest sales year to date was 2014 (the state offered tax credits for EV purchases between 2013 and 2015). Data broken down by quarter over the past decade in Figure 8 shows the upward trend in EV sales especially in 2021.

Figure 8: New EV Sales in the Southeast Over Time



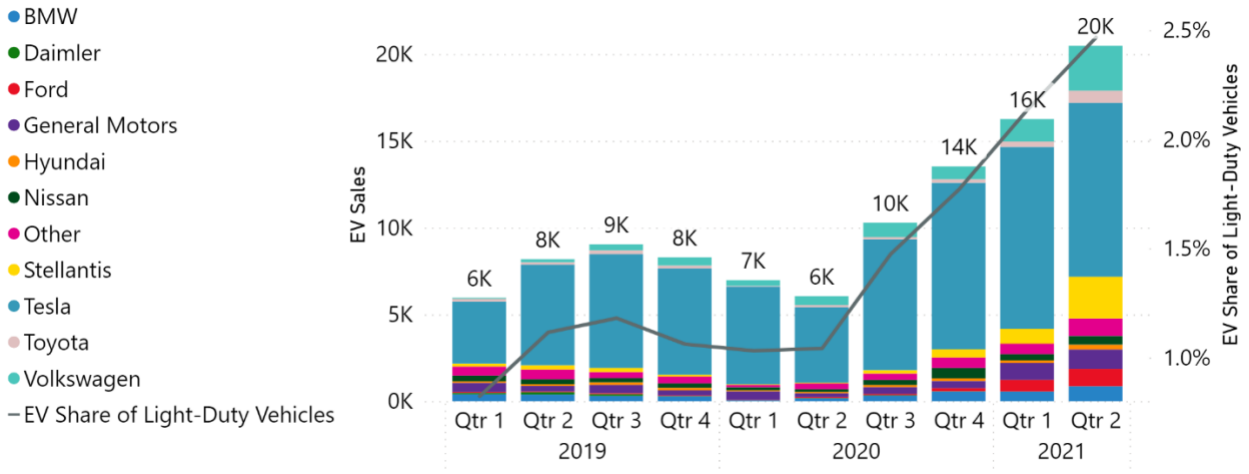
New EV sales in 2021 have shown a substantial increase. Through half of 2021, sales in the region are already on par with the total from 2020 the previous annual high. Notice the step change between 2017 and 2018 across all markets in large part due to the release of Tesla's Model 3, which dominated the market for a time.

Source: Atlas EV Hub.

While sales figures represent growing demand for EVs, it is important to account for changes on the supply side as well. In a brief in August 2020, the International Council on Clean Transportation noted that passenger EV model availability is a limiting factor on EV market growth [37]. Alabama has the lowest sales and the fewest types of vehicles available and while Florida has the third-largest EV market in the country, it has fewer EV models available than Georgia. Meanwhile, South Carolina has a third of the sales of North Carolina, but more EV models are offered.

Beyond passenger EVs, sales of electric and plug-in hybrid MDHD vehicles remained low across the country including in the Southeast. We noted in the 2020 report that North Carolina was the only Southeast state to adopt the Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Initiative Memorandum of Understanding (MOU). This MOU encompasses trucks, delivery vans, and transit and school buses. By signing the MOU states commit to 100 percent ZEV truck and bus sales by 2050. While no other Southeast state has formally adopted this standard in the year since it provides a blueprint for the region and starting point for planning.

Figure 9: EV Sales for the Southeast Since 2019



Sales across the Southeast have risen steadily since Q2 2020 – the outset of the pandemic. Note the dominance of Tesla vehicles in the market over time but also the growth of the rest of the market in 2021.

Source: Atlas EV Hub.

Charging Infrastructure

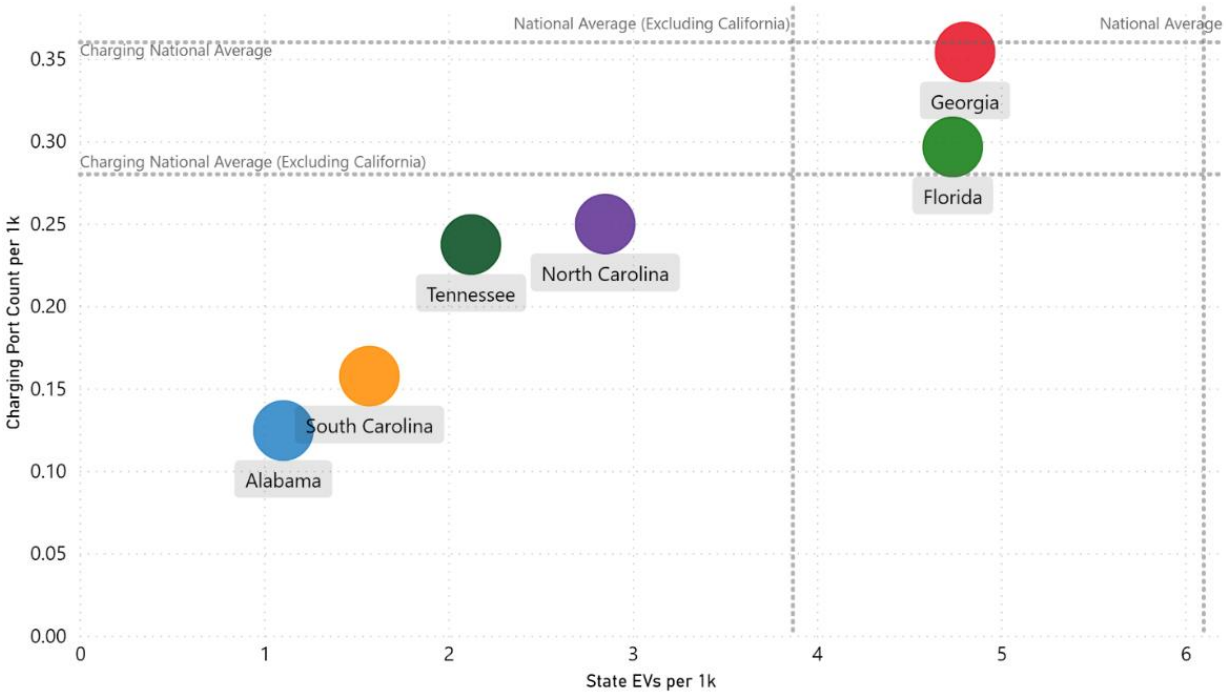
Charging infrastructure is a critical component of transportation electrification. Across the six Southeast states, there are 15,376 total ports in 6,351 locations. Of those, 12,872 are L2 chargers and 2,504 are DCFC ports. In the last year, 5,436 total ports have been installed across 2,407 locations in the region – that is, more than one-third of total charging ports in the Southeast have been deployed in the past 12 months. Of those, 1,022 are DCFC ports and 4,414 are L2 chargers.

In 2020, we reported that the Southeast was below its national share in charging ports. The proportion is unchanged at 14 percent this year, still below its share of the population. Through July 2021, there are now 118,380 charging ports in 46,723 locations around the country. This is an increase of 63 percent nationally in the past 12 months.

Charging infrastructure per 1,000 people is a useful indicator of a state's readiness to transition to an electric fleet. Florida and Georgia lead their peers in terms of Southeast charging infrastructure, whereas Alabama and South Carolina are lagging. As per Figure 10, Florida and Georgia are slightly above the national average for EV charging, when California is not counted. Even accounting for population differences, the rest of the country has twice the number of chargers as South Carolina (on average) and Georgia has three chargers to every charger in Alabama (on average).

Policymakers should take active steps to ensure that public charging infrastructure is distributed equitably. Many low- and moderate-income (LMI) families live in multi-family dwellings, where there is no easy access to at-home charging and research indicates that public charger access is low in below-median-income household areas and areas with Black and Hispanic majority populations [38].

Figure 10: State Electric Vehicles per person and Charging Ports per 1,000 people



This figure reflects the strong relationship between charging ports and EV sales. Charging infrastructure per 1,000 people is a useful indicator of a state's readiness to transition to an electric fleet.

Source: Atlas EV Hub.

Table 3: Charging Infrastructure Across the Six Southeast States through July 2021

State	L2 Ports	DCFC Ports	Total Charging Ports per 1000 people	EV Sales per Port
Alabama	508	97	0.12	8.9
Florida	5,044	1,113	0.29	16.2
Georgia	3,133	545	0.35	13.7
North Carolina	2,156	398	0.25	11.5
South Carolina	647	134	0.16	10.3
Tennessee	1,384	217	0.24	8.9
National Total	**98,645**	**19,735**	**0.36**	**17.4**

Source: Atlas EV Hub.

Government Investment and Policies

Policies and investments overseen by state governments have the potential to increase transportation electrification across the Southeast. This section covers government-funded investments, incentives, regulations, and other policies.

State Investments

The Southeast continues to fund electrification efforts at a rate that trails the rest of the country. Around the country, all states awarded $918 million to electric initiatives over the past 12 months. California and New York together made up over half the awards with $553 million in EV investments over that period. Over the same period, states in the Southeast oversaw $94 million in awards for transportation electrification from the Low- or No-Emission (Low-No) program and VW Settlement funding.

The use of VW Settlement funds increased in the Southeast states in the last 12 months. Over this timeframe, $366 million from the VW Settlement was awarded nationally of which $102 million was by Southeast states, though none was awarded in Georgia. In the context of the VW Settlement, allocation refers to VW funding earmarked for the state in the original settlement, and awarded refers to funds that states have dedicated to specific projects or initiatives.

Of the funding awarded over the past 12 months in the Southeast, 68 percent was for electric initiatives as compared with 61 percent nationally. The largest Southeast proportion was to school bus initiatives and then to charging initiatives. As passenger EV sales rise, a gap may emerge between the number of EVs on the road and the public infrastructure needed to sustain that fleet.

The six Southeast states have awarded $170 million of the $427 million allocated to them from the VW Settlement[4]. To date, 55 percent of those awards have gone towards EVs and EV charging, slightly higher than the national average of just over 53 percent. Cumulative government-funded awards across the Southeast in transportation electrification, including Low-No and VW Settlement funding, now total $179 million to date.

We noted in last year's report that there is funding available to the region to grow transportation electrification from VW Settlement funding. South Carolina has fully awarded its funding to date, however, the other Southeast states have more than $257 million remaining in funding from the VW Settlement. In the 2020 Report, we noted that Georgia is one of only three states, along with Oregon and Wisconsin that has not yet awarded any Settlement money to EV charging. This is unchanged over the past 12 months. Georgia has a prime opportunity to invest in significant transportation electrification through the funding allocated to the state.

As well as the funding allocated and the funding awarded from the VW Settlement, Atlas tracks state VW Settlement Mitigation Funding plans. According to the state plans, Georgia has 50 percent of the funding dedicated to zero-emission vehicles (ZEV). The other states range from 10 to

[4] Allocation refers to VW funding earmarked for the state in the original settlement. Awarded funds are funds that states have dedicated to specific projects or initiatives.

15 percent. Note that states may fund electrification initiatives even if the funding is not dedicated for that purpose so that this is a floor rather than a ceiling.

Table 4: VW Settlement Funding to date

State	Total Allocation	Funds Awarded to Date	Funds Awarded to EVs	% of Awards Directed to EVs
Alabama	$ 25,480,968	$9,898,991	$4,211,365	43%
Florida	$ 166,278,745	$65,600,000	$65,600,000	100%
Georgia	$ 63,624,726	$2,027,650	$0	0%
North Carolina	$ 92,045,658	$30,081,951	$10,809,949	36%
South Carolina	$ 33,895,491	$33,872,466	$2,290,450	7%
Tennessee	$ 45,759,914	$28,796,371	$10,247,311	36%
Total	**$ 427,085,502**	**$170,277,430**	**$93,159,075**	**55%**

Source: Atlas EV Hub.

Some most notable funding awarded over the past 12 months include:

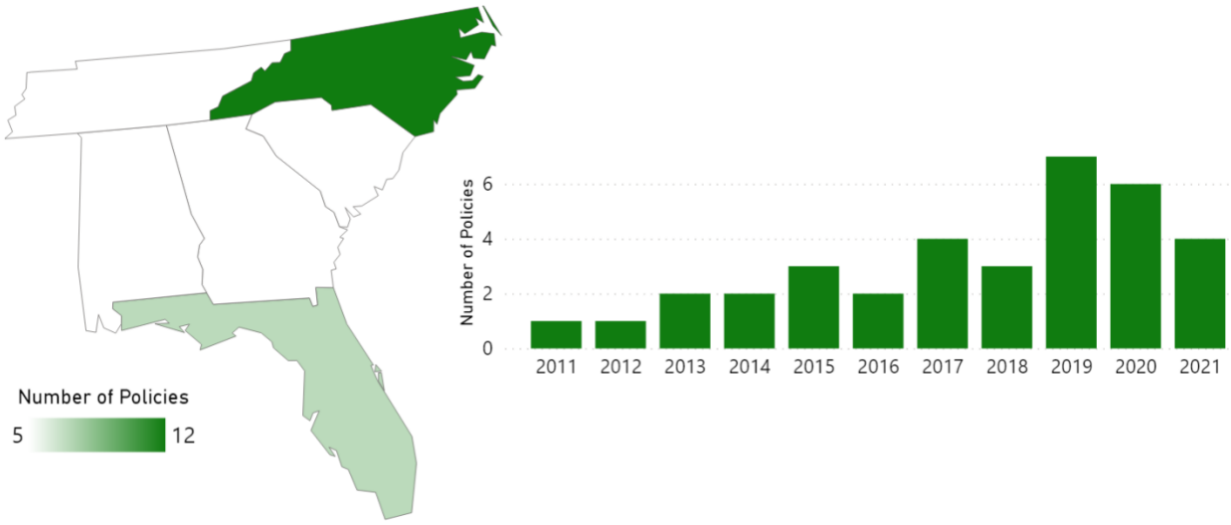
- **Alabama's** first spending on EV charging infrastructure was announced in June 2021 when Governor Kay Ivey announced a $4.1 million investment [39]. This is the first significant funding award for transportation electrification from the VW Settlement in the state and could support up to 50 chargers.
- The largest award to date was in **Florida**. The state announced $57 million for electric school buses in early 2021. This funding, from the VW Settlement, was awarded to seven county school districts [40]. Eligibility was based on poor air quality in the county. In total, the funding will support up to 218 electric school buses across the state. School districts were required to support the purchase by contributing at least 25 percent of the purchase price. Broward County was the largest recipient and was allocated 60 buses. Those buses will replace aging diesel buses [41]. This funding could be supported by the $5 billion in federal funding for low and zero emissions school buses if the INVEST in America Act is enacted into law.
- In **Georgia**, $5.5 million was awarded to a transit bus project funded by the Lo-No Program. The funding includes 10 electric commuter buses and 11 charging stations [42].
- In **North Carolina**, a Low-No grant of $2.5 million enabled the City of Fayetteville to transition diesel buses to electric buses.
- **South Carolina** awarded nearly $3 million to the Central Midlands Regional Transit Authority servicing Richland and Lexington with Low-No Funding. The Authority will purchase battery-electric and fuel cell buses along with charging equipment and supportive infrastructure.

- The VW Settlement funding enabled a $5 million award in **Tennessee** to fund DC fast chargers every 50 miles along the state's interstate roads and major highways. In total, this allocation will see 50 more DCFC chargers installed in the state, double the number of existing chargers [43].

State Incentives

States across the Southeast could do more to encourage the purchase of EVs. Figure 11 provides a snapshot of incentive policies for EVs in the Southeast. For instance, none of the Southeast states have purchase policies in place for MDHD vehicles. Georgia and Alabama have charging incentives available in the form of a tax credit and grant program, respectively, where Georgia's program requires the EV charging equipment to be made available to the public.

Figure 11: Map of Enacted Policies to Incentivize EVs Across the Region



The map denotes enacted policies by state. The darker green denotes more enacted policies by state to date. The graph denotes enacted policies by year for the region over the same time. Note that we did not include fees in this map as they are generally considered to be a disincentive to the uptake of transportation electrification.

Source: Atlas EV Hub.

Georgia offered a tax credit for EV purchases from 2013 to 2015. The corresponding boost in sales (illustrated in Figure 8) shows the potential for consumer side incentives to spur growth and the drop-off in sales since then reflects the risk in ending programs before they have spurred market shifts. Across the Southeast, none of the other six states currently offer a vehicle incentive.

Also, in Georgia and North Carolina, EVs can travel in High Occupancy Vehicle Lanes [44] and there is some evidence that points to this as a motivating factor for prospective buyers [45].

Across the region, there are fees in place for electric vehicle owners. In South Carolina where there is already a $120 fee for electric vehicles that is paid every two years – legislators are considering increasing that amount [46]. Alabama and Georgia both charge an annual fee of more than $200 and Tennessee and North Carolina both charge more than South Carolina. Indeed, Georgia currently has the highest annual fees for EVs in the country at $214 per year for battery EVs. Table 5 outlines the fee structure across the region. Only Florida and South Carolina are below the national average for battery EV fees. Consumer Reports argued that in some places fees for EV owners are punitive and that by 2025, 18 states will charge more in EV fees than they will collect from drivers in gas taxes [47].

Table 5: Annual fees levied in each state for battery EVs and plug-in hybrid EVs

State	Annual Battery Electric Vehicle Fee	Annual Plug-in Hybrid Electric Vehicle Fee
Alabama	$200	$100
Florida	$0	$0
Georgia	$214	$0
North Carolina	$130	$0
South Carolina	$60	$30
Tennessee	$100	$0
National Average	**$121**	**$75**

The National Average refers only to states with fees in place. There are 30 states that charge an annual fee on BEVs and 23 states with a fee on PHEVs.

Source: Atlas EV Hub.

Direct Sales Regulations

The traditional dealership model, where manufacturers must sell vehicles to dealerships and not directly to consumers, increases vehicle costs to consumers and can decrease consumer flexibility by, for example, preventing direct online sales of new vehicles by manufacturers. The dealership model is particularly burdensome for new manufacturers without existing dealerships such as dedicated EV manufacturers because setting up a network of dealerships is costly and time-consuming. Some states have enacted laws to do away with the traditional dealership model to support consumer choice, decrease vehicle costs to consumers, and support new manufacturers and the EV market in general. Across the Southeast, laws governing direct-to-consumer sales vary. Florida, Georgia, Tennessee, and North Carolina all allow for direct EV sales and service. North Carolina and Georgia only allow limited direct sales and service only for Tesla, with North Carolina permitting Tesla to operate six sales and service centers and Georgia two.

Florida and Tennessee allow any manufacturer to sell directly and service in-state while South Carolina and Alabama prohibit direct sales and service [48].

Statewide and Regional Commitments

There's much work to be done to develop and strengthen policies and actions in the Southeast to advance the EV market and associated infrastructure in the region. For this reason, a group comprised of business, educational, government, and non-profit organizations has been meeting to design a framework to accelerate progress by sparking regional coordination and collaboration.

The intention of this soon-to-be formalized group is to address regional market challenges such as EV charging accessibility, EV model availability, and consumer awareness while unlocking untapped economic development, job growth, and energy security opportunities. While raising awareness to show funders and manufacturers that conditions in the region are ripe for further growth, the group intends to bring attention to the need for more coordination and support to address ways the Southeast is falling behind the nation, as well as opportunities for states to learn from one another in encouraging growth in the EV market.

States continue to develop state specific policies to support electric vehicles. In the 2020 Report, we noted the passage of the 2019 Rebuild Alabama Infrastructure Plan. This Plan supports a vision of building out a statewide passenger EV charging network and was backed with a $2 million investment in the 2020 budget to educate the public about the use of electric vehicles [49].

In 2021, North Carolina signed onto the Transportation and Climate Initiative (TCI) as a participating jurisdiction. The TCI's mission is to "improve transportation, develop the clean energy economy and reduce carbon emissions from the transportation sector" [50]. North Carolina is one of 14 states to have signed onto the TCI and is the only state in the Southeast. In late 2020, four jurisdictions formally adopted the TCI Program which involves a "cap and invest" program. These jurisdictions will fund $300 million a year in clean transportation initiatives [51]. North Carolina joined several other states in signing a Memorandum of Understanding to begin reporting data from 2022. If all 14 states join the cap and invest program, the amount of funding available could increase to $2 billion per year [51].

Model Policies Across the Southeast

Across the country, there are several regional and cooperative initiatives to support transportation electrification. These include California's Zero Emissions Vehicle (ZEV) Program, which is followed by 10 other states along with three states considering the program, but none in the Southeast [52]. The program requires automakers to make available for sale an increasing proportion of EVs in their state. Together these states made up 58 percent of nationwide EV sales in the Q2 of 2021 and have 69 models offered for purchase, whereas the average number of vehicle models offered in the Southeast is 47.

Similarly, two rules that originated in California - the Advanced Clean Truck (ACT) Rule and the Omnibus Rule - point to the future for trucks and medium- and heavy-duty vehicles and

rulemaking. The ACT Rule enacted by the California Air Resource Board in 2020 requires an increasing percentage of new truck sales to be electric through 2035. New Jersey signaled that it would go the same way in July 2021. The Omnibus Rule increases emissions standards for trucks and in doing so reduces nitrogen oxide emissions. The Biden Administration in August 2021 indicated that it would take up a revision to emissions standards for trucks to be released in 2022 [53].

Jobs and Investment

EV manufacturing remains a particular strength for the Southeast. The region's position as an EV manufacturing hub, bringing not just vehicle building capabilities to the area but also increasingly advanced battery capacity, has strengthened in the past year.

In 2020, the Southeast made up 14 percent of all jobs in EVs nationally and 28 percent of all EV investment. In 2021, the region's EV industry grew so that the Southeast now makes up 18 percent of national EV jobs and 37 percent of national EV investment. There has been an increase of 66 percent in the last 12 months in EV only investment in the Southeast with a total of $11.1 billion. On the jobs front, at least 7,785 EV-only employment opportunities have been announced in the region, which is a 33 percent increase in the last 12 months. These figures show that the EV market continues to garner investment, with increasing opportunities for domestic manufacturing. The corresponding national figures are $29.9 billion in EV investments supporting more than 42,921 EV manufacturing jobs.

However, not all automakers report the investment amount or jobs directly tied to the transportation electrification components of their operations. Also, the employment numbers do not include employment figures for most of the vehicle supply chain and charging infrastructure companies. Thus, the total transportation electrification economic development and job growth potential in the Southeast are likely much greater. As seen in Table 6, Georgia has the largest single plant by EV employee capacity followed by three plants in Tennessee.

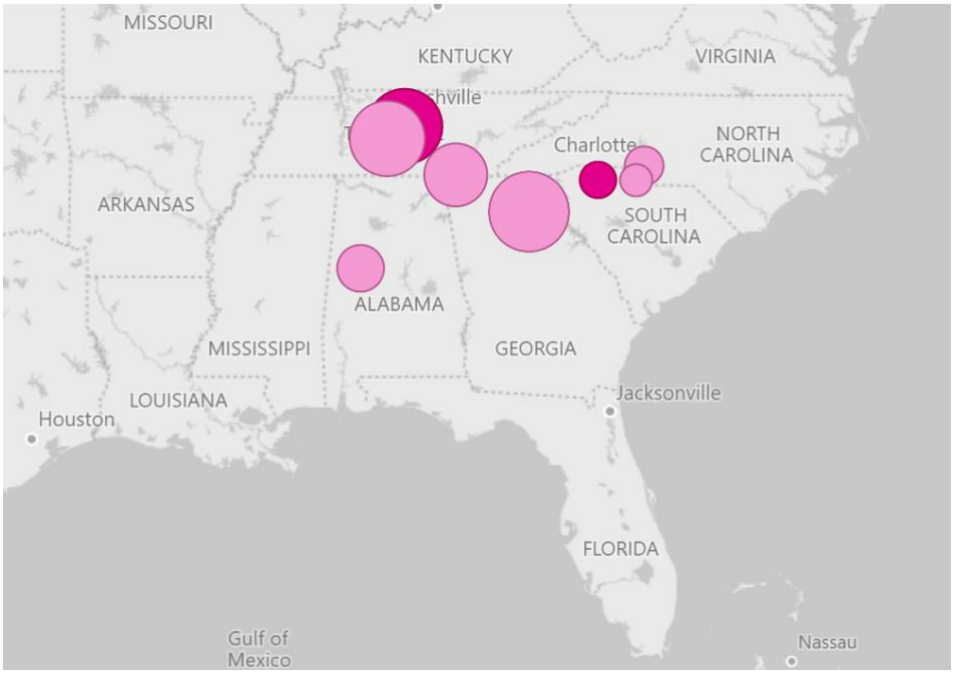
Table 6: Investment in the Southeast by Original Equipment Manufacturers

Company	Facility Name	State	EV Production Start Year	EV-only Employees	EV-only Investment
Arrival	Charlotte Headquarters	NC	2021	150	$3,000,000

Company	Facility Name	State	EV Production Start Year	EV-only Employees	EV-only Investment
Arrival	Charlotte Microfactory	NC	2022	250	$41,200,000
Volkswagen of America Inc.	Chattanooga Plant	TN	2022	1,000	$800,000,000
Mercedes-Benz	North Charleston	SC	2023	NA	$58,585,000
BMW of North America Inc.	Plant Spartanburg	SC	2019	345	$20,000,000
Arrival	Rock Hill Microfactory	SC	2021	240	$46,000,000
Nissan North America Inc.	Smyrna Vehicle Assembly Plant	TN	2012	1,300	$1,700,000,000
Volvo Cars	South Carolina Car Factory	SC	2022	0	$600,000,000
General Motors Corp.	Spring Hill Battery Plant	TN	2023	1,300	$2,300,000,000
General Motors Corp.	Spring Hill Facility	TN	2021	NA	$2,000,000,000
Mercedes-Benz	Tuscaloosa	AL	2020	600	$1,000,000,000
SK Innovation	Commerce	GA	2022	2,600	$2,600,000,000
Total				**7,785**	**$11,618,785,000**

Source: Atlas EV Hub.

Figure 12: Battery and EV Production Capacity Across the Region



This map captures the strength of EV manufacturing in Tennessee in particular. Dark pink refers to current and light pink refers to planned production. The bubble size refers to the size of the investment.

Source: Atlas EV Hub.

EV Manufacturing

In addition to announcements from the large auto manufacturers, there have been several other electric vehicle manufacturing job developments in the region. In July 2021, Governor Brian Kemp of Georgia announced the establishment of the Electric Mobility and Innovation Alliance (EMIA). The Alliance brings industry and government together to shape policy to ensure Georgia continues to be a destination for electric vehicle manufacturers [29]. Membership will include large manufacturers and electric utility companies.

Arrival, an MDHD EV manufacturer announced plans to bring more than 250 jobs to Charlotte, North Carolina to build electric delivery vans [54]. The factory is set to begin production by Q3 2022.

In July 2021, Mercedes-Benz announced a $47 billion plan to become an all-electric manufacturer. The announcement includes an undisclosed investment in battery manufacturing, with a planned plant in the United States. While the company did not specify the location of the plant, executives signaled an intention to locate it near the existing assembly plant in Tuscaloosa, Alabama [55].

Rivian, an electric truck and SUV maker backed by Amazon, announced that it will spend $5 billion on a new EV assembly plant in the United States. The location has not been announced but it points to demand for land and labor to build electric vehicles across the country [56].

In Spartanburg, South Carolina, Oshkosh Defense announced a $155 million investment to build a new plant to support 1,000 jobs and build vehicles for the United States Postal Service's Next Generation Delivery Vehicle program [57]. Production is set to begin in the summer of 2023. In Ridgeville, South Carolina, Volvo announced a $118 million investment in June 2021 to develop the all-electric Polestar 3 [58]. Also in South Carolina, Proterra, an electric bus maker, has manufacturing facilities and offices.

Supply Chain

The influx of industry has the potential to significantly grow employment opportunities across the Southeast. In a report from July 2021, the Environmental Defense Fund and PwC identified three Southeastern states, Tennessee, Georgia, and North Carolina, as among the top states in the country for investments in MDHD supply chains and corresponding employment; this supply chain analysis includes more of the supply chain than captured in Table 6. Most of the investment is dedicated exclusively to manufacturing, rather than infrastructure or midlife applications. Florida and Alabama are the only Southeast states without at least $100 million invested [59].

The report also identified more than $42 billion in investment across the country since 2014 in zero-emission MDHD vehicles. Given the expected growth in zero-emission MDHD vehicles over the coming decade, opportunities exist for states to grow jobs and related investments, particularly in manufacturing. Together, North Carolina and Tennessee have more than 10,000 employees working in the zero-emission MDHD vehicle supply chain. South Carolina has slightly fewer than 10,000 employees in the sector and Georgia and Alabama both have more than 1,000. Florida has fewer than 1,000 employees in the sector [59].

Batteries and Parts Suppliers

In Georgia, SK Innovation is moving forward with its planned battery plant despite earlier threats to withdraw from the state [60]. SK Innovation will invest $2.6 billion and is expected to support 2,600 jobs at a plant in Jackson County. The plant will begin producing batteries for electric vehicles in 2022 [61].

Established automakers like General Motors (GM), Mercedes, and Volvo continue to announce investments. In April 2021, LG Energy and GM pledged to invest $2.3 billion to employ 1,300 workers in a new battery facility in Spring Hill, Tennessee. The plant will open in 2023 [62]. This will be GM's second plant in Tennessee. In October 2020, the company announced an investment of $2 billion in its existing plant in Spring Hill to make it the company's third battery plant. The Spring Hill plant will be the first outside of Michigan and is expected to create an estimated 3,200 jobs [63].

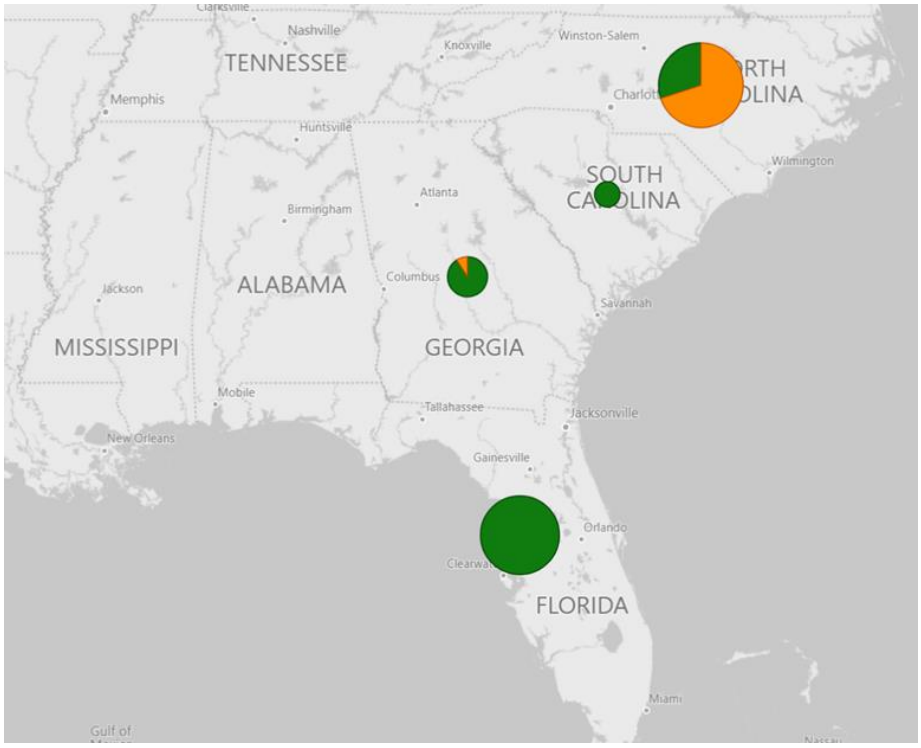
As well as the established automakers, newcomers like Rivian and charging and EV parts suppliers like SK Batteries, Duckyang, and Heliox are also setting up operations in the Southeast. The following investments are all in Georgia (note that these job figures are not included in the manufacturing data as they are not linked to major automakers) [64]:

- Duckyang (South Korean electric mobility parts supplier) will build two plants near Braselton. Expected to support 285 jobs [65].
- GEDIA (German manufacturer of lightweight auto-body parts) plans to open a plant in Whitfield County. Expected to support 200 jobs [66].
- TEKLAS (Turkish electric-vehicle parts manufacturer) will open its first North American plant in Gordon County. Expected to support 120 jobs [67].
- Heliox (Dutch electric-vehicle charging company) will establish its North American headquarters in Atlanta. Expected to support 70 jobs [68].

Atlas analysis has indicated that there is a need for $87 billion in new charging infrastructure to achieve 100 percent passenger EV sales by 2035 – let alone manufacturing and other elements of the EV supply chain [69]. The potential for job growth from EV charging expansion is particularly high as the market grows to support an increasing number of EVs in the region.

Utilities

Figure 13: Pending and Approved Investor-Owned Utility Investment Across the Region



This map shows where investor-owned utilities have proposed (orange) or been approved (green) to invest in transportation electrification to date. The size of the bubble corresponds to the number of proposed or approved programs.

Source: Atlas EV Hub.

In the 2020 Report, we noted there were $32 million of approved investor-owned utility (IOU) investments in transportation electrification in the Southeast. These approved investments amounted to less than one percent of total IOU EV investment from around the country. This number has increased by nearly $100 million over the past 12 months, bringing the total approved IOU investment in the Southeast to $130 million through July 2021. This means that the Southeast now makes up just over four percent of approved national IOU investment. There is also nearly $59 million in pending IOU investments across the region.

Box 1. Tennessee Valley Authority

In addition to investor-owned utilities, public utilities have also made investments in transportation electrification in the Southeast. In January 2021, the Tennessee Valley Authority (TVA), a federally owned power company, and the Tennessee Department of Environment and Conservation (TDEC) signed an agreement to partner on building DC fast-charging stations every 50 miles along Tennessee's interstates and major highways [70]. This would add 50 new charging sites and triple the number of DC fast chargers in the state compared to February 2021 [71]. This investment complements the TVA's membership in the Electric Highway Coalition. The Coalition currently has 14 members covering 29 states and aims to provide DCFC charging capabilities every 100 miles on interstate highways. The TVA's goal is to increase capacity on the roads in TVA's seven-state service territory from 18,000 EVs currently to 200,000 by 2028 [72][72]. The TVA also announced in August 2021 a plan to electrify at least half of its fleet by 2030 [73]. This push would see the electrification of nearly 1,200 vehicles.

Taking a step back to view historical IOU investments in transportation electrification, there have been investments from five IOUs across four of the Southeast states:

- Duke Energy (Florida, North Carolina, and South Carolina)
- Georgia Power Company (Georgia)
- Tampa Electric Company (Florida)
- Gulf Power Company (Florida)
- Florida Power & Light Company (Florida)[5]

[5] Note Florida Power & Light Company and Gulf Power Company merged in early 2021 [81].

Box 2. Municipal Utilities in Florida

Municipal utilities are also investing in EV infrastructure. The Orlando Utility Commission (OUC), a municipal utility in Orlando, Florida, is in the process of installing the largest multi-modal high speed charging site in the United States [74] [74]. The site, in the heart of Orlando, will support 20 charging stations including two stations up to 350 kW. OUC has planned eight similar hubs across the city. OUC is also working with Central Florida's bus system, LYNX, to assist in converting 50 percent of their 300-bus fleet to electric buses over the next 10 years [75] [75]. A pilot program is underway with eight electric buses in operation and six additional buses to be delivered in 2022. Finally, municipal utilities can play an important role in providing incentives to consumers. The OUC offers a $200 incentive to customers for the purchase of an EV.

Over the past 12 months, IOUs in the Southeast were approved to invest $98 million in EV programs, with North Carolina and Florida leading the way with more than 90 percent of this approved investment. These approved programs could support more than 500 DC fast chargers and more than 3,600 Level 2 ports. During this period, IOUs in the Southeast proposed $56 million in EV programs that are still pending a decision from the Commission. If approved, these programs could support 180 DC fast chargers and 960 Level 2 ports. The IOU in Alabama, Alabama Power Co., has yet to invest in electrification initiatives. The Tennessee Valley Authority, a federally owned electric utility, is supporting transportation electrification in the state, as described in Box 1.

Atlas also tracks if and how IOUs ensure the benefits of their EV investments will be distributed equitably. For example, some utility programs include requirements for certain amounts of investment to be made in underserved communities. To date, IOUs in the Southeast have committed to investing just over $1 million in underserved communities, less than one percent of the $130 million in total approved investments. By comparison, $770 million has been approved for equity investments across the country, about 25 percent of the $3.1 billion of approved investment.

Importantly, these figures only include investment approvals that carve out a certain amount of funding to underserved communities. There are other ways utilities can prioritize equity in their programs such as including equity in siting criteria or targeting certain use cases, such as multi-family homes or public transit, that are expected to serve underserved communities. For example, in North Carolina, Duke Energy's approved program (docket E-2, Sub 1197) includes investment at multi-family dwellings with the stated intent of benefitting underserved communities, and the North Carolina Utilities Commission based its approval of the program in part on these benefits, stating, "While not all residents of multifamily housing are low or moderate income, many are, and several parties emphasized the need to specifically extend the benefits of the Pilot to low- and moderate-income ratepayers."

Box 3. Municipal Utilities in North Carolina

In North Carolina alone there are more than 70 municipal utilities [76]. Over the past 12 months, North Carolina municipal utilities invested in eight new DC fast chargers (with grant matching from cities). The investment totaled more than $600,000. Municipal utilities also supported the deployment of 41 Level 2 ports across eight cities in North Carolina [77].

Municipal utilities continue to play an important role not only through investments but in planning. ElectriCities, a membership organization for municipal utilities across North Carolina, South Carolina and Virginia, co-funded EV Strategic Plans for their members. These plans support municipal utilities' planning efforts for electrification in their communities by evaluating the electric load and revenue impacts of EVs at varying levels of EV market penetration. The plans also estimate the energy cost savings to EV drivers and the potential positive impact on the local economy.

There have been several approvals of large IOU investments in the Southeast over the past 12 months:

- *Duke Energy Florida (docket 20210016-EI)*: In May 2021, the Florida Public Service Commission approved Duke Energy Florida's $62.9 million Electric Vehicle Program. The program includes a Commercial/ Industrial Rebate Program for Level 2 and DCFC rebates for use cases including the public, MUDs, workplaces, fleets, schools, transit vehicles, fleets, and off-road vehicles (forklifts and eTRU). The program also approves Duke to own and operate DCFC stations at 100 sites, expanding their existing utility-owned DCFC network. In addition, the program includes incentives for non-residential charging stations to encourage off-peak charging.
- *Duke Energy Carolinas, LLC, North Carolina (docket E-2, Sub 1197)*: In November 2020, the North Carolina Utilities Commission approved $25 million of the proposed Electric Transportation (ET) Pilot program, roughly a third of the initial proposal. The ET Pilot is a three-year program designed to support multiple use cases for EV charging and both school and transit bus electrification. The approved program includes funding for electric school buses, public Level 2 and DC fast-charging stations and charging for MUDs with a focus on low-income housing. Duke will own and operate all charging infrastructure associated with these pilots.
- *Tampa Electric (docket 20200220-EI):* In April 2021, Tampa Electric was approved to invest in a four-year pilot with a total budget of $2 million as well as allowances for program administration. Tampa Electric will own and operate 200 Level 2 ports and eight DC fast chargers across their service territory. The stations will serve five customer segments including workplaces, public/retail, multifamily, income-qualified, and government sites. The utility will offer up to $5,000 per port for workplace,

multifamily, and public/retail station and will cover 100 percent of the cost for income-qualified and government sites. The utility will retain ownership of the chargers during the pilot.

- *Florida Power & Light (docket 20200170-EI):* In December 2020, Florida Power & Light was approved to implement two new optional pilot EV rates. The rates are designed to support legislation in Florida seeking to accelerate the deployment of DC fast-charging throughout the state by reducing demand charges for DC fast chargers [78].
- *Duke Energy Carolina and Duke Energy Progress, South Carolina (docket 2018-321-E (DEC), 2018-322-E(DEP)):* In September 2020, Duke Energy Carolina's Electric Transportation Pilot was approved. The program includes a Residential EV Charging Utility Management Program, DC Fast-Charging Program, Education/Outreach and, Ongoing operations and maintenance. The Application includes reporting and education and outreach for each program. The approved program doubles the originally proposed funding for DC fast-charging stations, and doubles the expected number of DC fast-charging stations from 20 to 40 for Duke Energy Carolinas and from 10 to 20 for Duke Energy Progress.

In August 2021, Florida Power & Light Company filed a settlement agreement in its rate case that includes $205 million in EV programs [79]. This filing is outside of the specified timeframe for this report but given its size is worth noting. If approved, the program will see charging infrastructure located in underserved communities, along highway corridors and evacuation routes, commercial EV charging rate design, investments in new technologies and software, and support for consumer education and outreach.

Significant growth in approved IOU investment across the Southeast over the past 12 months indicates the potential for utilities to fuel transportation electrification efforts across the states. Utilities have provided a key source of investment around the country and could do so in the Southeast to bridge gaps in EV infrastructure.

Conclusion

This report highlights the many growth areas for the EV industry, with the Southeast especially primed to benefit from an expanding, domestic manufacturing sector. EV sales continue to grow strongly across the region and utilities are increasing investments in EV charging infrastructure to support that growth in sales. VW Settlement money awarded has also grown over the past 12 months, with significant funding still available to invest in transportation electrification. The Southeast continues to attract some of the largest battery and EV manufacturers in the world, leading to jobs and investment. Broadly, transportation electrification has the potential to deliver economic, health, and environmental benefits to the region.

States have much to learn from one another in encouraging growth in the EV market. Southeast states have implemented policies to support EV uptake including consumer tax credits (Georgia), direct-to-consumer sales experience (Florida and others), or stronger regulatory support for EVs (North Carolina). Likewise, there is much to be learned from other states around the country in incentivizing and encouraging uptake in transportation electrification. There is power in states coming together, as showcased in the Transportation Climate Initiative, the Zero Emission Vehicle standards, and the Advanced Clean Truck and Omnibus rules.

One challenge for the EV industry is ensuring that investments deliver more equitable outcomes. Further, it will be crucial to ensure that data like what is reported in this report along with measures to capture equity, is transparent and accessible to policymakers and decision-makers. This report notes the places where there is available data on equity; however, there remain many and considerable gaps. There is a need to collect better data to inform decision-making around policies and investments. Equity considerations in transportation electrification will be crucial, not only to ensure the affordability of EVs but also to ensure access to charging infrastructure for all. As the country transitions to electric modes of travel, the industry, governments, and investors are at risk of leaving communities behind. The benefits of EVs – to consumers through savings, to communities through pollution reduction, and economic benefits to the region – must be shared by all. Better data measurement means both measurement of the outputs – charging units for instance – and measurement of the impacts and benefits as outlined earlier in this report.

Better measurement also means tracking the used EV market, which is typically more readily accessible to LMI communities. Several institutions and advocacy groups – for instance, the Greenlining Institute – have laid the groundwork for data collection through identifying equity measures [79]. Gathering and reporting data that aligns with these measures should be a focus for future reports and policymaking.

The Biden Administration has signaled that 50 percent of all sales should be electric (or plug-in hybrid) by 2030 and consumers are increasingly indicating that they are ready to purchase EVs [80]. As the momentum towards electrification grows in the coming decade, states in the Southeast should plan and invest now so that the region is able to capture all the benefits of the energy transition.

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