

TRANSPORTATION ELECTRIFICATION IN THE SOUTHEAST

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AUTHORS

Tom Taylor

Policy Analyst

Atlas Public Policy

Spencer Burget

Policy Analyst

Atlas Public Policy

CONTRIBUTING AUTHORS

Stan Cross

Electric Transportation Policy Director

Southern Alliance for Clean Energy

Dory Larsen

Electric Transportation Program Manager

Southern Alliance for Clean Energy

DESIGN + EDITING

Kate Tracy

Communications Manager

Southern Alliance for Clean Energy

ABOUT ATLAS PUBLIC POLICY

Atlas Public Policy equips businesses and policymakers to make strategic, informed decisions that serve the public interest. Atlas builds analytical tools and dashboards using powerful, accessible technology, and offers expert advisory services to tackle the pressing issues of the day.

ABOUT SOUTHERN ALLIANCE FOR CLEAN ENERGY

The Southern Alliance for Clean Energy is a nonprofit organization that promotes responsible and equitable energy choices to ensure clean, safe and healthy communities throughout the Southeast. As a leading voice for energy policy in our region, SACE is focused on transforming the way we produce and consume energy in the Southeast.

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EXECUTIVE SUMMARY

SALES

Light-duty electric vehicle (EV) sales in the Southeast continue to trend upward. EVs accounted for 5 percent of all new light-duty vehicle sales in the region in Q2 2022, up from 2.5 percent in Q2 2021. Florida led all states in the Southeast in Q2 2022 with 6 percent EV market share. An increase in available EV makes and models is helping more buyers enter the market, despite supply chain headwinds.

MANUFACTURING EMPLOYMENT AND INVESTMENT

The Southeast's greatest strength is in EV manufacturing. The region has captured nearly \$33 billion in announced investment and more than 40,000 anticipated jobs, including successive announcements to build EVs in Georgia by Rivian and Hyundai, which were each projected to be the largest economic development projects in the state at the time of announcement. More than a third of the nation's anticipated EV manufacturing jobs will be in the Southeast.

UTILITIES

Two Florida investor-owned utilities (IOU) lead the way in the Southeast for approved EV investment per customer. While Florida Power & Light (\$41 per customer) and Duke Energy Florida (\$39 per customer) lead the region, all IOUs in the Southeast trail the national average (\$50 per customer).

CHARGING DEPLOYMENT

Charging infrastructure deployment continues to grow apace in the region, up 28 percent over the past year. There are challenges across the country, and in the region, to ensure that charging is accessible to all communities, investments are made equitably and charging stations provide long-term reliability.

PUBLIC FUNDING

National EV Infrastructure (NEVI) funding from the Bipartisan Infrastructure Law will change the public EV infrastructure landscape. Southeast states will receive \$680 million, which will outstrip existing public investments in EV infrastructure and set much-needed minimum standards.

POLICY

Though Florida, North Carolina, South Carolina, and Tennessee engage in electric transportation planning, and North Carolina has set ambitious transportation decarbonization targets, the Southeast policy landscape is not supportive of EV market growth.

MEDIUM AND HEAVY-DUTY (MDHD)

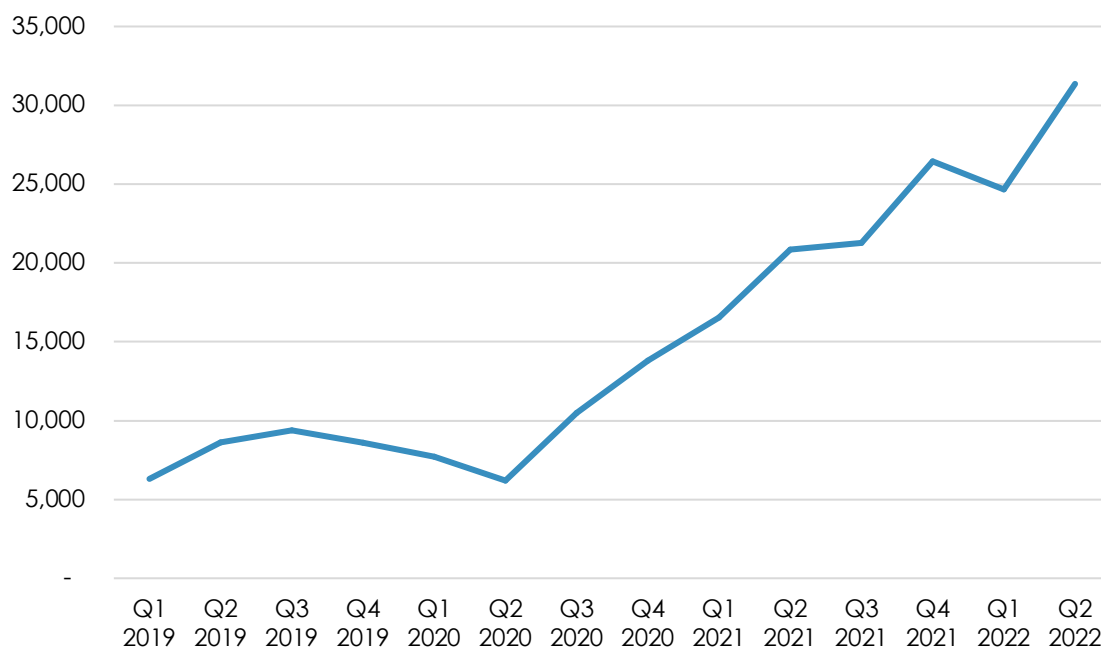
The electrification of MDHD is underway around the country, though still trails light-duty uptake significantly. In the Southeast, Florida's bus fleet electrification stands out.

INTRODUCTION

Beginning in September 2020, Atlas Public Policy (Atlas) partnered with the Southern Alliance for Clean Energy (SACE) to publish the first annual “Transportation Electrification in the Southeast” report. The publicly available report benchmarked progress on transportation electrification in six states in the Southeast: Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee. This is our third annual report and provides an update on progress from July 2021 through June 30, 2022.

The need for transportation electrification is considerable. Transportation is the single largest source of greenhouse gas emissions in the United States and transportation electrification can help significantly reduce carbon emissions. At the same time, there are opportunities to improve health outcomes, address environmental injustices, and stimulate jobs and economic development in the Southeast through the uptake of EVs.

Figure 1: Southeast Light-Duty EV Sales by Quarter through June 2022



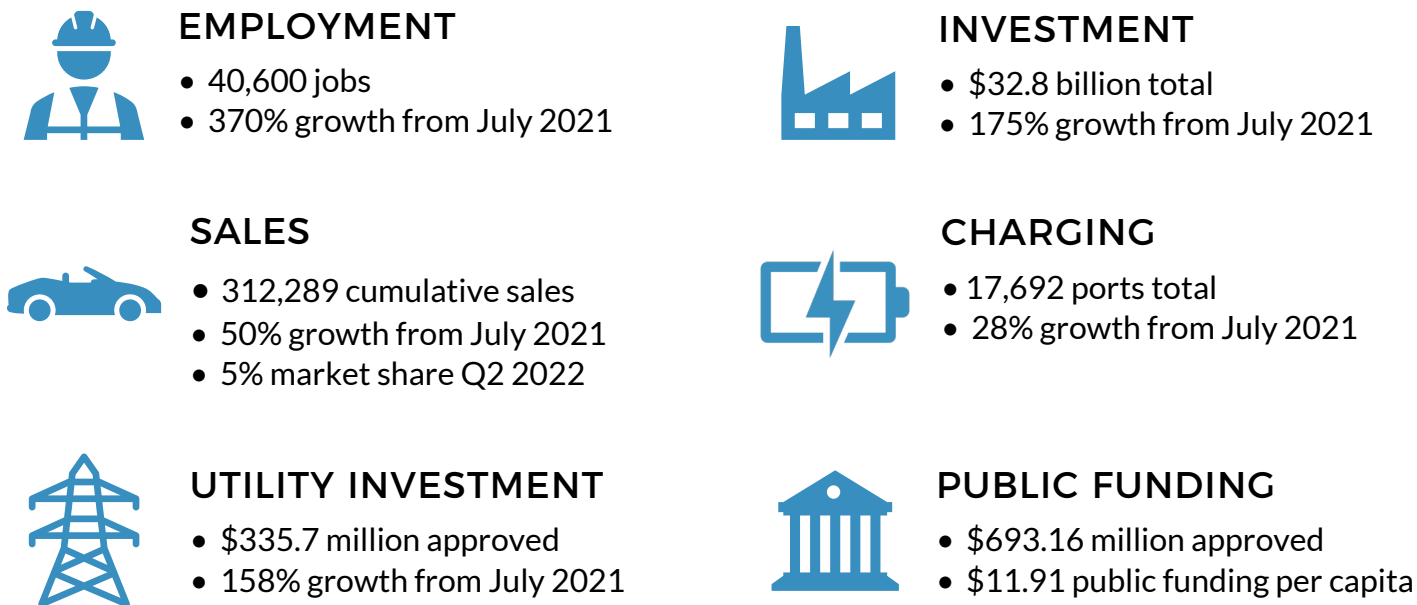
This figure depicts new light-duty EV sales from January 1, 2019 through June 30, 2022, in the Southeast. EV includes Battery Electric Vehicles (BEV) and Plug-In Hybrid Electric Vehicles (PHEV). Source: Atlas EV Hub.

There have been two major federal developments since the last report. In November 2021, the Bipartisan Infrastructure Law went into effect. The law unlocks substantial funding for transportation electrification—notably through the National Electric Vehicle Infrastructure Formula Program which will invest \$5 billion in public EV charging and \$2.5 billion in competitive grants for electric and other alternative fuel charging. Further, the Clean School Bus Program will support up to \$5 billion in zero-emission school buses, and another \$5.5 billion will support state and local government purchases of zero- and low-emission transit buses through the Low or No-Emission Bus Program.



Then, in August 2022, Congress passed the Inflation Reduction Act (IRA), which included the largest climate spending ever appropriated by the Federal Government. The IRA will fund transportation electrification initiatives, most notably a redesigned consumer EV tax credit, light, medium- and heavy-duty EV manufacturing tax credits, and incentives to onshore battery and vehicle manufacturing. These two federal spending packages will deliver considerable funding to support transportation electrification efforts in the region and grow economic development and jobs.

Figure 2: Southeast EV Indicators through June 30, 2022



All measures include medium- and heavy-duty EVs, except for sales which refers exclusively to passenger EVs. Employment and Investment refer to EV manufacturing and battery production only. EV manufacturing employment and investment represents commitments made to specific facilities in the state. Total is cumulative unless stated. Source: Atlas EV Hub

The Southeast continues to see growth across key EV measures, as shown in this report. The challenge is to ensure state policies and investments foster a thriving EV market that supports manufacturer and supply chain expansion, ensures consumers have equitable access to EV charging and ownership, and enables light, medium- and heavy-duty fleet operators to electrify.



ABOUT THE DATA

Data used to develop this report derives from the Atlas EV Hub: www.atlasevhub.com, which tracks the metrics described below. Where data are not derived from EV Hub, the data source is noted.

EV MANUFACTURING EMPLOYMENT AND INVESTMENT measures the number of direct manufacturing jobs and investment supported by light, medium and heavy-duty EV and EV battery production. This figure is tied to specific facilities and is typically reported directly by vehicle and battery manufacturers in press releases. Data included in this report are current as June 30, 2022.

EV SALES are sourced from light-duty passenger EV sales provided by IHS Markit (2019-present) and the former Alliance for Automobile Manufacturers (2011-2018). Aggregated EV sales data for all states are provided by vehicle make and model since 2019 and include light-duty battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV). Sales data includes new vehicle sales only. Data included in this report are current as of June 30, 2022.

ELECTRIC UTILITY INVESTMENT tracks EV-related investments and is sourced from investor-owned electric utility dockets filed to state utility regulators. The investment data includes both EV programs proposed by utilities that await commission approval as well as investments approved or denied by commission orders. Data does not include investments from cooperatives and publicly owned utilities. Data included in this report are current as June 30, 2022.

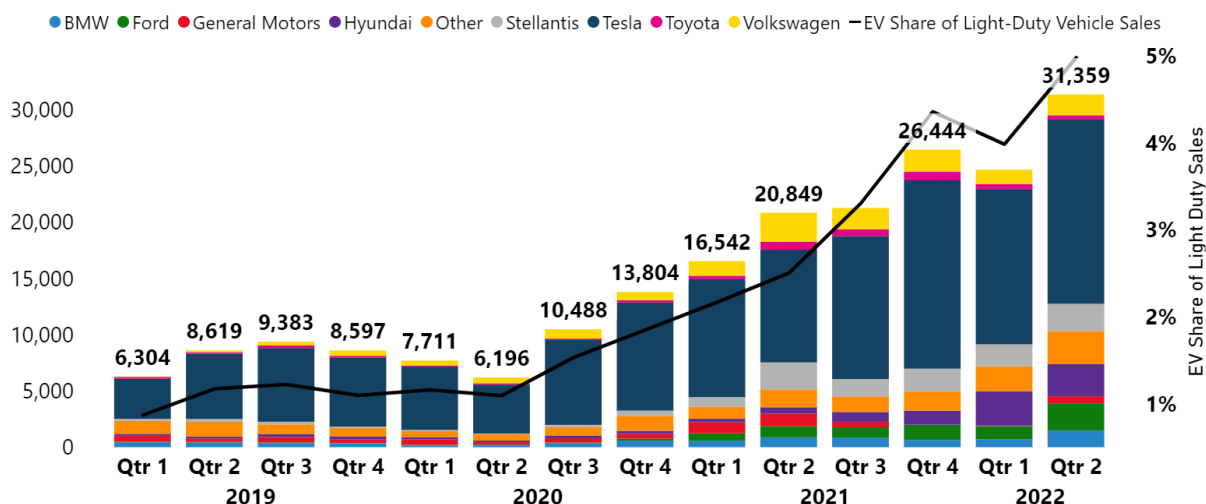
PUBLIC FUNDING FOR EVS tracks federal and state government funding programs dedicated to transportation electrification, including funding allocated through the Volkswagen Settlement. Data included in this report are current as of June 30, 2022.

EV CHARGING DEPLOYMENT tracks all deployed publicly available EV charging infrastructure and is sourced from U.S. Department of Energy's Alternative Fueling Station Locator. Atlas only counts individual ports that can be used simultaneously. These numbers are current as of June 30, 2022.

SALES

The light-duty EV market continues to grow apace in the Southeast. In Q2 2022, EV market share in the Southeast was 5 percent, up from 2.5 percent in Q2 2021. The region trails the national market where EVs made up nearly 7 percent of all light-duty sales in Q2 2022. Cumulative new EV sales in the Southeast grew 50 percent over the preceding 12 months, from 208,548 vehicles to 312,289 vehicles. Florida led the Southeast with 6 percent EV market share in Q2 2022, trailed by Georgia and North Carolina with around 5 percent. Alabama was the lowest in the region at 2.1 percent.

Figure 3: Southeast EV Sales from Q1 2019 to Q2 2022



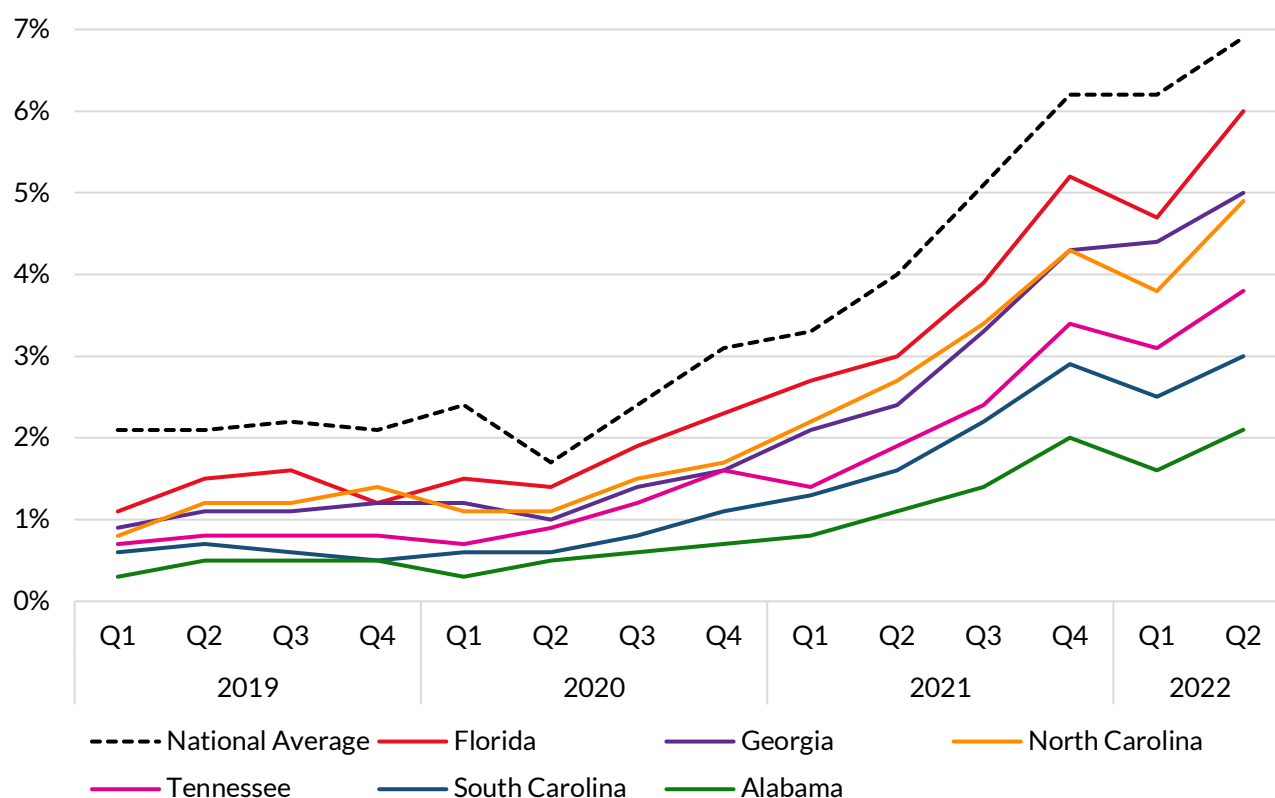
This figure depicts new light-duty EV sales over time in the Southeast by automaker through June 30, 2022. EV includes Battery Electric Vehicles (BEV) and Plug-In Hybrid Electric Vehicles (PHEV). The EV share line depicts the market share for EVs for all light-duty vehicle sales. Source: Atlas EV Hub.

Tesla remains the dominant EV automaker in the region capturing 57 percent of EV sales in the first six months of 2022. Hyundai saw a strong rise in 2022, emerging as the second best-selling EV automaker nationally and in the Southeast. Hyundai's rise was fueled by the Hyundai Ioniq 5 and Kia EV6, both released in 2021. The past year also marked the arrival of electric pickup trucks, first with Rivian's R1T followed by the Ford F-150 Lightning. The availability of light-duty electric trucks is a key milestone given that in 2020, 14 percent of all new sales and leases for light-duty vehicles were trucks. [1]

Buyers in the Southeast can choose from more EV models than ever. Georgia has 57 models available, and Alabama has 45 models available (the highest and lowest in the region). Just 12 months ago, there were only 41 models available to buyers in Georgia and 24 available to buyers in Alabama, marking a significant uptick in available models and expanding choice for buyers. This expansion is even more impressive given supply chain constraints and represents important EV market maturation.

The sales noted above account for new vehicle sales only. However, most vehicle transactions are on the secondary market. For example, 71 percent of all light-duty vehicle sales and leases in 2019 were used vehicles. [2] While the secondary market is dominated by gasoline vehicles, there are signs of strong EV adoption in the used vehicle market. [3] The Inflation Reduction Act created a tax credit for used clean vehicles that may spur greater demand in the used vehicle market.

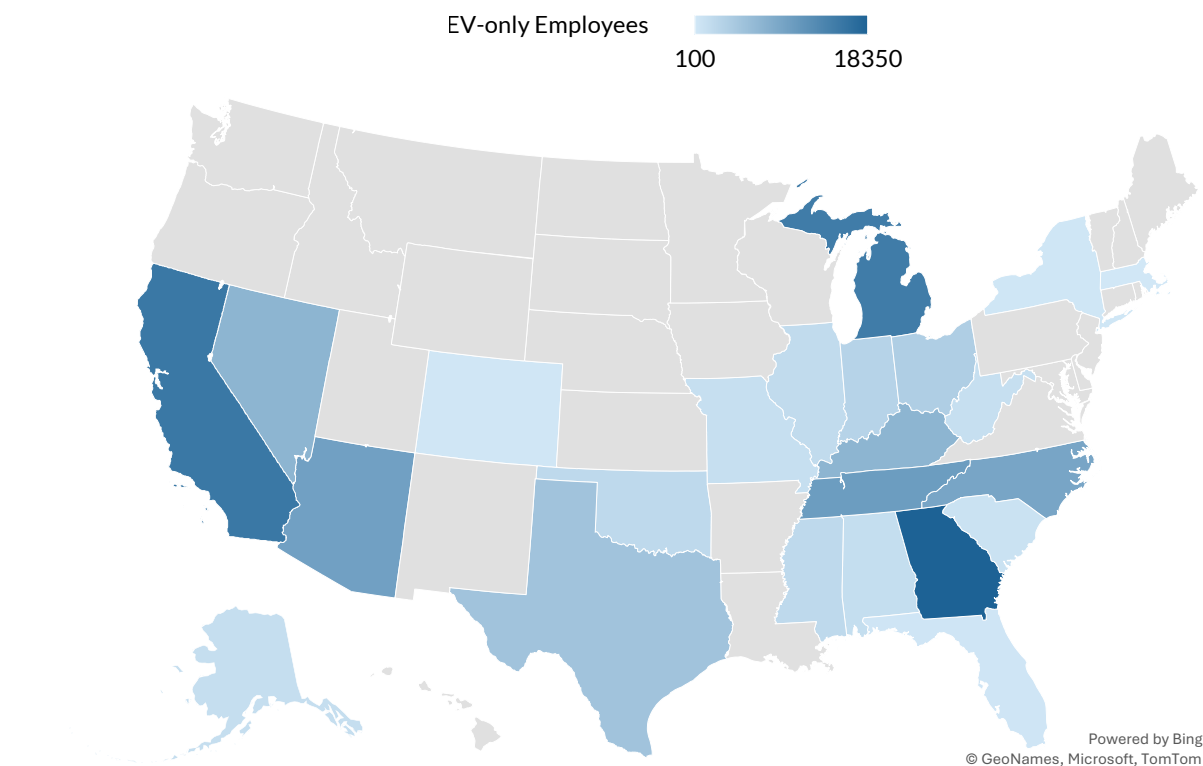
Figure 4: Southeast EV Light-Duty Vehicle Market Share



This figure depicts EV sales as a percentage of light-duty vehicle sales from 2019 through June 30, 2022. EV includes both BEV and PHEV sales. Source: Atlas EV Hub.

MANUFACTURING

Figure 5: Anticipated EV Manufacturing Employment by State



This data counts announced EV manufacturing jobs (including battery manufacturing) by state through June 30, 2022. Source: Atlas EV Hub.

The Southeast continues to solidify its status as a key hub for EV manufacturing jobs and investment. Indeed, 34 percent of all announced EV manufacturing jobs (counting battery production and EV assembly jobs) through June 30, 2022, will be in the Southeast.

Over a third of anticipated nationwide EV manufacturing jobs through June 30, 2022 were announced in the first half of 2022, with more than 16,000 of those EV manufacturing jobs announced in the Southeast. Georgia leads the nation in anticipated EV manufacturing jobs and the Southeast is home to three of the top six states in the country – Georgia, Tennessee, and North Carolina. Most of these jobs will support light-duty vehicle electrification, however as MDHD vehicles are increasingly electrified, there are opportunities for the Southeast to capitalize on its existing strengths and lead in all classes of EV manufacturing.

Anticipated EV manufacturing jobs in the Southeast have grown 370 percent over the past 12 months and investment has grown 175 percent. The Southeast's EV manufacturing explosion has been driven by several high-profile, large-scale announcements. In December 2021, Rivian announced a \$5 billion investment in the company's second manufacturing plant. The plant outside Atlanta, Georgia, is expected to create 7,500 jobs. Governor Brian Kemp lauded this announcement as the largest economic development project in the state's history. Only a few months later, Hyundai surpassed this record by announcing a new EV manufacturing hub that will support 8,100 jobs. Meanwhile, over the past 12 months, North Carolina landed its first battery and vehicle manufacturing investments from Toyota and VinFast, combining to bring an anticipated 8,750 jobs to the state. Table 1 summarizes the largest five EV manufacturing investments in the region by announced jobs, four of which were announced over the past 12 months.

Table 1: Five Largest EV Manufacturing Announcements by Jobs in the Southeast

State	Company	Anticipated Jobs	Announced Investment	Date Announced
Georgia	Hyundai	8,100	\$6,540,000,000	5/20/2022
Georgia	Rivian	7,500	\$5,000,000,000	12/16/2021
North Carolina	VinFast	7,000	\$2,000,000,000	3/29/2022
Tennessee	Ford / SK Innovation	6,000	\$5,600,000,000	9/27/2021
Georgia	SK Battery America	2,600	\$2,610,000,000	6/25/2020

Four of the five largest facilities (by jobs, date italicized) were announced over between July 1, 2021 through June 30, 2022, and three of the top five are in Georgia. Source: Atlas EV Hub.

There are various explanations offered for the growth in EV jobs in the Southeast. One factor is the significant economic incentive packages offered by state governments. In Georgia, for example, Hyundai and Rivian received around \$3.3 billion in promised subsidies between them. [5] Other reasons include that all six states are right to work states (that is, it is harder to unionize) and that the Southeast has inexpensive industrial electricity



rates. In its decision to locate production between Tennessee and Kentucky, Ford noted the “site size, shovel readiness and proximity to other EV sites, transportation and other key services”. [6]

It is not just EV manufacturing and battery jobs that are finding a home in the region. Other key parts of the EV industry will be sited in the Southeast. In addition to the jobs mentioned above, in February 2022, EV charging manufacturer Tritium pledged to create 500 jobs in Tennessee. [7] Data on EV charging jobs and manufacturing will be incorporated into future reports as the industry grows.

It is important to note that these jobs are only announced. Companies may not necessarily deliver these jobs and there is often little clarity on the types and quality of jobs available. It is also worth noting that this counts EV manufacturing jobs and so does not count corporate or research and development jobs such as those at Arrival’s Headquarters in North Carolina.

Notable: Southeast Grid Can Deliver Climate Benefits

As the region electrifies, the climate benefits will be significant. Research from the Union of Concerned Scientists finds that the Southeast is prime for EVs given that the electricity grid has relatively low emissions. This is particularly true in the SRVC region (SERC Reliability Corporation Virginia Carolina taking in North Carolina, South Carolina and Virginia), which is among the cleanest grids in the country due predominantly to high levels of nuclear power. [4] In that region, driving the most efficient EV (the 2021 Tesla Model 3 Standard Range Plus) is the equivalent, on a carbon-emissions basis, of driving a gasoline vehicle with an efficiency of 129 miles per gallon.

UTILITY INVESTMENT

Investor-owned utilities (IOUs) are crucial enablers of transportation electrification. IOUs serve more than 70 percent of electricity customers in the United States (though this may be lower in the Southeast given the presence of the Tennessee Valley Authority). [8] The rest of the population is served by cooperatives and publicly owned utilities. This summary focuses only on investor-owned utilities.

Through June 30, 2022, investor-owned utilities nationwide were approved for \$3.55 billion in transportation electrification investments. A further \$2.9 billion in investments were awaiting approval from state utility commissions as of June 30, 2022. The Southeast represents approximately 10 percent of all approved investments, with \$336 million approved for investment. There is a further \$58 million in proposed investments pending mostly in North Carolina with some also proposed in Georgia. The funding approved through June 30, 2022 would support more than 500 Direct Current Fast Charging (DCFC) stations and more than 4,000 Level 2 stations, among other needs.

Table 2: Southeast Investor-Owned Utility Investment Per Customer

State	Operating Company	Investment	Customers	Investment by Customer
Florida	Florida Power & Light	\$205,000,000	5,061,483	\$41
Florida	Duke Energy	\$70,900,000	1,832,871	\$39
South Carolina	Duke Energy	\$8,830,000	800,000	\$11
Georgia	Georgia Power	\$24,000,000	2,572,624	\$9
North Carolina	Duke Energy	\$24,714,675	3,700,000	\$7
Florida	Tampa Electric	\$2,300,000	771,959	\$3
National		\$3,550,918,148	71,251,870	\$50

The Investment by Customer refers to the total utility investment divided by the number of customers served. Duke Energy customer data in North and South Carolina was drawn from a Duke Energy fact sheet as of April 1, 2022. Source: Atlas EV Hub

Investment on a per customer basis is revealing as it demonstrates a utility's commitment to transportation electrification. Nationally the average was \$50 in approved investment per utility customer, and the top nine utilities were all in California and New York. All utilities in the Southeast were lower than the national average. Florida Power and Light (FP&L) and Duke Energy Florida were close to the national average at \$41 and \$39 respectively per utility customer.

Florida Power and Light (FPL) was approved in December 2021 to invest \$205 million to support EVs in Florida. FPL will own the chargers, making this the largest utility-owned charger program by dollar amount through June 30, 2022. In February 2022, the North Carolina Utility Commission approved Duke Energy North Carolina to invest \$24.7 million in the Make Ready Credit Program. This funding allows Duke Energy to invest in the electrical work to bring power to potential station sites and provide credits to customers to cover costs to electrical installers that are putting EV chargers in place. Duke Energy has proposed the same program in South Carolina, which is awaiting commission approval.

Notable: Equity Investments by Investor-Owned Utilities

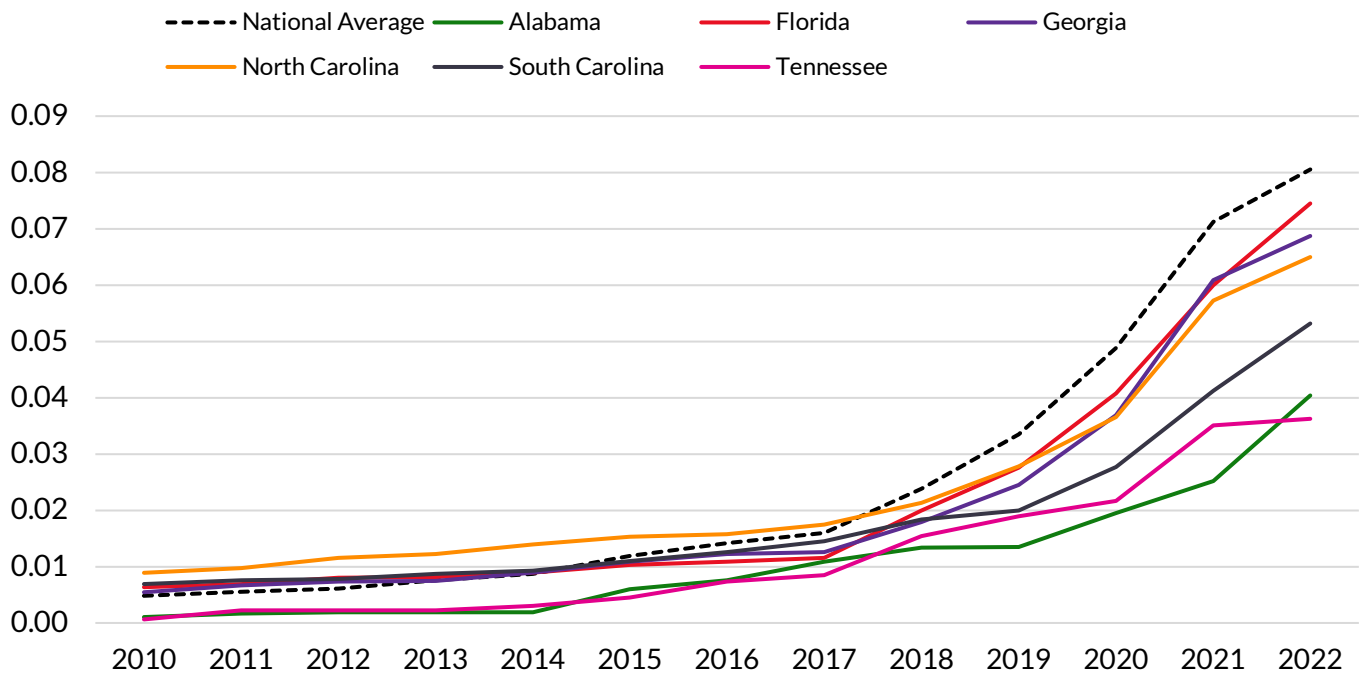
The Southeast has seen low levels of identified equity investment from investor-owned utilities. Through June 30, 2022, around \$1 million in the region was approved for underserved communities or less than 1 percent of all approved investments through June 30, 2022. For reference, nationally, 28 percent of utility filings were designated as equity investments.

Utilities are a key source of investment and stand to benefit financially from increased electricity demand from the transportation sector; and increased revenue can help put downward pressure on utility rates for all customers. Utility investments in charging infrastructure help ensure that drivers have access to reliable charging and fleet operators have access to the capital needed to transition to EVs. Additionally, investments in make-ready programs, managed charging, and other supportive EV rate designs can significantly reduce the cost of charging station installations and EV ownership while ensuring the electricity grid is able to meet the demand of the expanding EV market. The lack of investment, or low levels of investment, from large utilities in the Southeast is impeding the uptake of electric vehicles and is undermining regional preparedness.



CHARGING DEPLOYMENT

Figure 6: Cumulative DCFC Ports per 1,000 People by State (2010 through June 30, 2022)



This figure depicts cumulative DCFC ports per 1,000 people (taking current population levels only) installed across states in the Southeast from 2010 through June 30, 2022. Source: Atlas EV Hub

The Southeast has made considerable progress in the past year in developing its EV charging network. The region added more than 1,200 new DCFC ports, a 50 percent increase year over year. Florida added the most ports (440), while Alabama saw the most relative growth, nearly doubling their DCFC network.

The region saw less growth in Level 2 charging, but still increased the number of publicly available Level 2 ports by nearly 25 percent year over year. The region now boasts 0.30 ports (both Level 2 and DCFC) per 1,000 people, trailing the national average of 0.42. However, the Southeast measures above average when it comes to the ratio of public DCFC ports to EVs on the road, an important measure of charger availability.

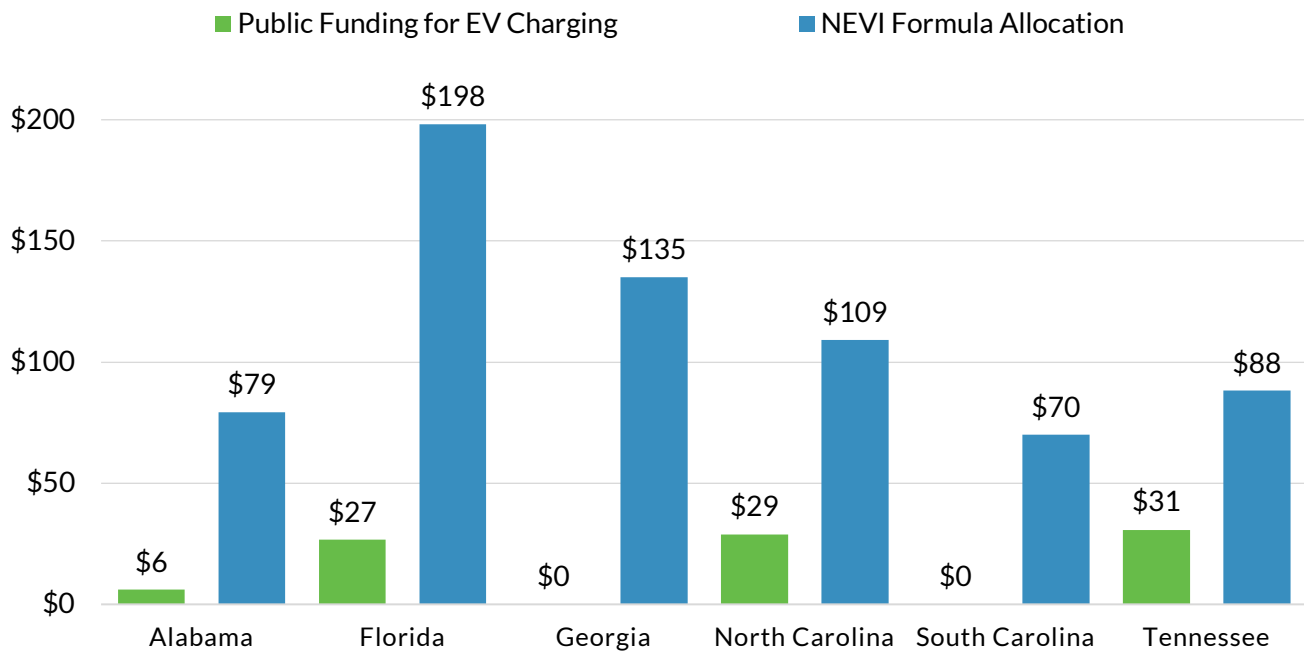
Table 3: Charging Ports in the Southeast

State	DCFC Ports (% Change YOY)		Level 2 Ports (% Change YOY)		Ports per 1k People	DCFC Ports per 1k EVs
Alabama	197	(95%)	587	(21%)	0.16	23
Florida	1,555	(53%)	5,748	(27%)	0.35	10
Georgia	715	(37%)	3,211	(20%)	0.38	11
North Carolina	667	(44%)	2,396	(26%)	0.30	15
South Carolina	267	(89%)	710	(18%)	0.19	21
Tennessee	241	(29%)	1,398	(18%)	0.24	11
Southeast	3,642	(50%)	14,050	(24%)	0.30	12

Source: Atlas EV Hub.



The Southeast is well positioned to build on its existing network through the NEVI program. Southeast states are eligible for a total of \$680 million from the federal government to build public charging stations. As seen in Figure 7, NEVI funding will far eclipse existing public investments in EV charging in the Southeast. NEVI will be a boost not just in terms of the number of chargers but also in the quality of the charging network. The NEVI program requires each site to support simultaneous charging of at least four vehicles with DCFC at 150 kW each (600 kW minimum total site power). This NEVI investment will help to standardize charging and to improve reliability and access to public charging, though significantly more investment will be needed in the future. According to the Department of Transportation, all states submitted their required NEVI spending plan prior to the August 1, 2022, deadline. [9]

Figure 7: Public Funding for EV Charging (\$ millions)

This Figure depicts public funding for EV charging awarded or made available through June 30, 2022 compared against each state's NEVI formula allocation. The public funding through June 30, 2022 includes both light-duty and some medium and heavy-duty charging infrastructure. Source: Atlas EV Hub

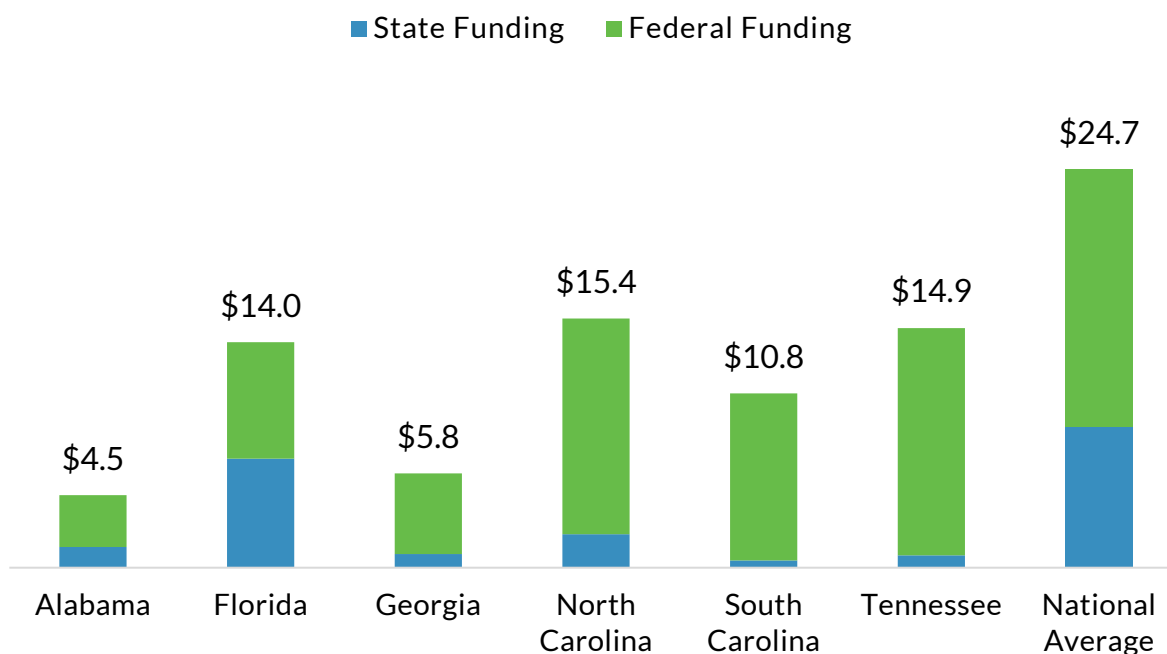
As charging is built out in the Southeast with the help of the NEVI program, it will be crucial to ensure that the chargers installed are reliable, affordable, accessible, and equitably distributed. While NEVI requires a minimum station uptime of 97 percent, historically, public chargers have struggled with reliability. [10] [11] Users without at-home access also need convenient access to public charging options that are

affordable. Given that public DCFC is considerably more expensive than at-home charging, this reliance could exacerbate inequities, especially for those lower-income EV owners living in multi-unit dwellings who may be more likely to rely on public charging. [12]



PUBLIC FUNDING

Figure 8: Southeast Public Funding per Capita for Transportation Electrification



This Figure depicts public funding for transportation electrification awarded or made available by funding source. Source: Atlas EV Hub

Public funding from state and federal sources has played an important role in the development of the EV market in the Southeast. However, the region significantly trails the national average for public funding per capita, particularly in Alabama and Georgia. The key sources of public funding through June 30, 2022 in the Southeast include the Volkswagen (VW) Settlement, the American Recovery and Reinvestment Act of 2009, and the Federal Transit Administration's Low- or No-Emission (Low-No) and Buses and Bus Facilities grant programs.

State Funding

States in the Southeast awarded or made available \$143 million for transportation electrification in the past year. Florida led the way with \$122 million,¹ followed by North Carolina with \$10 million and Georgia with \$9 million. Regional transportation electrification funding went to electric transit buses (54 percent), electric school buses (38 percent), and EV charging infrastructure (8 percent).

¹ Florida's VW Settlement awards for electric transit buses and electric school buses have been updated to reflect the formal [award announcement](#) made August 29, 2022.

Through June 30, 2022, states in the Southeast have awarded or made available \$191 million for transportation electrification, amounting to \$3.29 per capita. Per capita state funding ranges from \$7.05 in Florida (13th in the U.S.) to \$0.46 in South Carolina (48th in the U.S.) but trails the national average of \$8.72 across the board.

The VW Settlement continues to be the primary source of state funding for transportation electrification in the Southeast. The VW Settlement represents 99 percent of funds awarded or made available and is the only source of state funding in all states except for Alabama.

The Southeast has dedicated 52 percent of VW Settlement funding towards EVs and EV charging, slightly below the national average of 55 percent. Florida is one of only five states to have spent 100 percent of VW funds on EVs and EV infrastructure through June 30, 2022, while South Carolina ranked 46th with just 7 percent of VW funds awarded for EVs and EV infrastructure.

In August 2022, Florida was awarded \$68 million to purchase 227 electric transit buses, representing the largest single award for electric vehicles in the U.S. under the VW Settlement through June 30, 2022. Florida held the previous record with over \$54 million awarded for electric school buses earlier this year.²



Georgia also targeted transit buses this past year, drawing \$9 million from the VW trust in April to purchase 10 electric transit buses and associated charging infrastructure. Meanwhile, North Carolina launched the Phase 2 of their VW Settlement program with a series of funding opportunities for charging infrastructure spanning workplace, multi-unit dwelling, and public charging worth a total of \$9.6 million. Phase 2 of North Carolina's VW Settlement funding also includes \$54 million for school buses, transit buses, and heavy-duty equipment with priority given to EV projects.

Alabama remains the only state in the Southeast to fund electric vehicles outside of the VW Settlement. Between Fiscal Year 2021 and 2022, the legislature allocated \$2 million for EV education. [13] So far, the state has combined state funds with VW Settlement funding to support public charging infrastructure at 18 different locations. [14]

² Both awards were funded entirely by Florida's VW Settlement.

Federal Funding

The Southeast has also been successful in attracting federal funding for transportation electrification. Through June 30, 2022, states in the Southeast have been awarded more than \$500 million from federal programs for transportation electrification. Funding includes \$160 million for electric transit buses from the Federal Transit Administration, \$65 million from the Department of Energy's Vehicle Technologies Office for research and development, and \$230 million from the American Recovery and Reinvestment Act of 2009 for EV manufacturing.³

With the Bipartisan Infrastructure Law and the Inflation Reduction Act, there will be an unprecedented influx of federal funding for transportation electrification. New federal programs will provide a significant boost to electrification in the Southeast.

Table 4: Key Indicators for Public Funding in the Southeast

State	State Funding for EVs (\$ millions)	State Funding for EVs per Capita	Percent of VW Settlement for EVs	Federal Funding for EVs (\$ millions)
Alabama	\$6.3	\$1.3	24%	\$15.5
Florida	\$147.4	\$7.1	100%	\$150.9
Georgia	\$8.9	\$0.9	19%	\$51.8
North Carolina	\$21.2	\$2.1	23%	\$137.2
South Carolina	\$2.3	\$0.5	7%	\$51.9
Tennessee	\$5.3	\$0.8	22%	\$94.4
Southeast	\$191.4	\$3.3	52%	\$501.7

This table depicts public funding awarded or made available in the Southeast. Public funding excludes utility funding. Federal funding is reported separately and excludes loans. VW Settlement funding includes projects funded or funding made available (i.e., through an RFP). The "Southeast" captures a weighted average for per-capita funding and the percent of VW settlement for EVs. Source: Atlas EV Hub.

³ Includes Low or No Emission Grant Program, Grants for Buses and Bus Facilities, and Congestion Mitigation and Air Quality Improvement Program.

POLICY

State-Level

There are both challenges and opportunities in EV policymaking in the Southeast. For instance, none of the Southeast states have state-level rebates or grants for purchase of an EV. Likewise, some Southeast states have high annual registration fees for BEVs; Georgia ranks second in the country with an annual fee of \$214 and Alabama is tied for third with an annual EV fee of \$200.

There are also key developments in the Southeast underway. States are in the process of planning for EV futures including a target in North Carolina for 1.25 million registered zero-emissions vehicles (ZEV) by 2030 via Executive Order 246 from the Governor. This Executive Order also aims to reduce greenhouse gas emissions by at least 50 percent below 2005 levels by 2030 and to increase the share of new passenger vehicle sales to 50 percent ZEVs by 2030. The Executive Order requires that state agencies collaborate to achieve deep decarbonization across all sectors while enhancing public participation and centering equity along the way.

Notable: Advanced Clean Cars II Sets a New Benchmark

California demonstrated its ongoing leadership in EV policy by approving what may be one of the most consequential EV policies in the country. The Advanced Clean Cars II regulation would put California on a pathway to ensuring all new light-duty vehicle sales were Zero Emissions Vehicles (ZEVs) by 2035. Other states can adopt California's vehicle rules pursuant to Section 177 of the Clean Air Act. Given California's size and the uptake of the existing Advanced Clean Cars regulation, this could significantly shift the auto market around the country.

There are also campaigns afoot to create regulations that would accelerate vehicle electrification and improve consumer access to expanding EV makes and models. In North Carolina, environmental and public health advocates and businesses are calling on the Governor and the Department of Environmental Quality (DEQ) to initiate Advanced Clean Trucks rulemaking to regulate and accelerate the uptake of zero emissions trucks and buses. DEQ is evaluating the rulemaking and there is some momentum behind the push. Electrifying the MDHD sector will deliver significant climate benefits, drive economic development and improve public health, especially for the state's communities of color, which are overburdened with diesel exhaust pollution exposure.

On the consumer EV access front, direct consumer sales and service by EV manufacturers are only allowed in Florida and Tennessee. In contrast, the practice is banned in South Carolina and Alabama. Georgia and North Carolina only allow Tesla to sell directly to consumers and only in a limited capacity. This creates an awkward dynamic for EV manufacturers like Rivian, Arrival and VinFast that do not have dealer networks and therefore find it difficult to sell or service their products that are made in the Southeast.



As EV manufacturing takes off in the Southeast, policymakers may face added pressure to support the uptake of EVs. For example, reporting indicates that in Georgia, Rivian supported a state bill allowing direct sales and service (HB460). [15] The bill did not get a vote in the 2022 session, so it remains to be seen how much the presence of EV automakers will disrupt the policy status quo. [16] Meanwhile, in North Carolina, a campaign has launched ahead of the 2023 legislative session calling on lawmakers to update auto dealer franchise laws to expand direct to consumer sales.

Local-Level

Many Southeast local governments are leading on transportation electrification. Here are some key local policy initiatives this year:

EV-READY CODES

Coral Gables, Largo, Leon County and Orlando in Florida and Charlotte, North Carolina, all passed versions of EV-ready codes that require new or improved properties to prepare a percentage of parking spaces to accommodate EV chargers. Though varying across municipalities, properties include commercial, industrial, multi-family and single-family residential.

LOCAL FLEET ELECTRIFICATION

In Charlotte, North Carolina, the city pledged to have a 100 percent zero-carbon fleet by 2030, the strongest pledge of any regional government through June 30, 2022. [17]

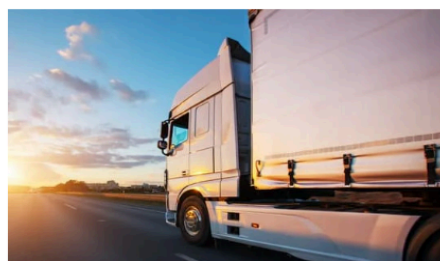
TRANSIT ELECTRIFICATION

The Pinellas Suncoast Transit Authority (PSTA) in Florida committed to 100 percent zero-emissions fleet by 2050. PSTA Board of Directors also approved the purchase 60 all-electric buses and plug-in chargers over the next five years. [18]

MEDIUM, HEAVY-DUTY, AND COMMERCIAL VEHICLES

Medium and Heavy-Duty (MDHD) vehicle electrification is a promising and emerging opportunity to reduce emissions, improve health, and lower costs. While MDHD vehicle electrification uptake has lagged passenger vehicles, the past year saw unprecedented growth in MDHD investment, policy support, and deployment.

Increased public funding, including the VW Settlement and the Federal Transit Administration's Low- or No-Emission Grant Program, as well as emerging regulations such as California's Advanced Clean Truck Rule, have galvanized the MDHD market. The Southeast has committed to 242 electric school buses and 430 electric transit buses as of March 2022 and December 2021, respectively. [19], [20] Florida leads the way with 218 electric school buses and 187 electric transit buses committed.



Electric truck and van adoption is also on the rise. Arrival, a North Carolina-based bus and van manufacturer, continues to invest in the Southeast. In December 2021, Arrival announced a new battery assembly plant in Charlotte that will supply batteries to the company's two micro factories in Charlotte and Rock Hill, South Carolina. [21] Arrival is gearing up production to fill an initial order from UPS for 10,000 electric delivery vans.

On the deployment side, in July 2022 GE Appliances, in partnership with Einride, began rolling out BYD electric freight trucks at its facilities in Tennessee, Georgia, and Kentucky. [22] The trucks have an estimated range of 200 miles and will start out transporting goods from the Port of Savannah to GE's warehousing and logistics centers in LaFayette, Georgia.

Federal investments are likely to further accelerate MDHD EV adoption and catalyze additional manufacturing investments. The Bipartisan Infrastructure Law includes \$5 billion for clean school buses and \$5.6 billion for electric transit buses. The Inflation Reduction Act includes a tax credit of up to \$40,000 for clean commercial vehicles including MDHD, \$1 billion in grants for clean heavy-duty vehicles, and \$3 billion for the U.S. Postal Service (USPS) to purchase EVs. Funding for the USPS may benefit South Carolina-located OshKosh Defense as the company is contracted to build the next generation of postal delivery vehicles. In July 2022, USPS pledged to electrify at least 40 percent of its new delivery fleet, up from the 10 percent initially pledged. [23]

CONCLUSION

The Southeast leads the way in battery production and EV manufacturing. There are opportunities for the region to translate that success into growth in EV adoption and charging station deployment. NEVI funding and other national investments, including from the Bipartisan Infrastructure Law and the Inflation Reduction Act, will be key drivers of this transformation. Still, change at the scale and pace needed will also require more investment, supportive policies, and expanded utility engagement. If successful, residents in the Southeast stand to benefit from the positive public health, economic and climate outcomes that come with transportation electrification.



REFERENCES

- [1] J. Erickson, "Study: Greater greenhouse gas reductions for pickup truck electrification than for other light-duty vehicles," University of Michigan, 4 March 2022. [Online]. Available: <https://news.umich.edu/study-greater-greenhouse-gas-reductions-for-pickup-truck-electrification-than-for-other-light-duty-vehicles/>. [Accessed August 2022].
- [2] Bureau of Transportation Statistics, "New and Used Passenger Car and Light Truck Sales and Leases," 2022. [Online]. Available: <https://www.bts.gov/content/new-and-used-passenger-car-sales-and-leases-thousands-vehicles>. [Accessed August 2022].
- [3] D. Zukowski, "EVs are the fastest-selling used cars in 9 major metro areas," Smart Cities Dive, 29 July 2022. [Online]. Available: <https://www.smartcitiesdive.com/news/electric-vehicles-fastest-selling-cars-cities/628132/>. [Accessed August 2022].
- [4] J. D. a. D. A. David Reichmuth, "Driving Cleaner," Union of Concerned Scientists, July 2022. [Online]. Available: https://www.ucsusa.org/sites/default/files/2022-07/driving-cleaner-report_0.pdf. [Accessed August 2022].
- [5] R. Bynum, "Hyundai gets \$1.8B in aid to build electric cars in Georgia," The Detroit News, 23 July 2022. [Online]. Available: <https://www.detroitnews.com/story/business/autos/foreign/2022/07/23/hyundai-georgia-aid-electric-cars/10135800002/>. [Accessed July 2022].
- [6] D. Shepardson, "@ford statement on Michigan and new plants announcement for Kentucky and Tennessee," Twitter, 29 September 2021. [Online]. Available: <https://twitter.com/davidshepardson/status/1443324643356577792?s=20>. [Accessed July 2022].
- [7] The White House, "FACT SHEET: Biden-Harris Administration Ensuring Future is Made in America," 8 February 2022. [Online]. Available: <https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/08/fact-sheet-biden-harris-administration-ensuring-future-is-made-in-america/>. [Accessed July 2022].
- [8] EIA, "Investor-owned utilities served 72% of U.S. electricity customers in 2017," 15 August 2019. [Online]. Available: <https://www.eia.gov/todayinenergy/detail.php?id=40913>. [Accessed August 2022].
- [9] FHWA, "Biden-Harris Administration Announces All 50 States, DC and Puerto Rico Have Submitted Plans for National Electric Vehicle Charging Network," FHWA, 2 August 2022. [Online]. Available: <https://highways.dot.gov/newsroom/biden-harris-administration-announces-all-50-states-dc-and-puerto-rico-have-submitted>. [Accessed August 2022].
- [10] Federal Highway Administration, "National Electric Vehicle Infrastructure Formula Program," 22 06 2022. [Online]. Available: <https://www.federalregister.gov/documents/2022/06/22/2022-12704/national-electric-vehicle-infrastructure-formula-program>. [Accessed 01 August 2022].
- [11] D. Rempel, C. Cullen, M. Bryan and G. Cezar, "Reliability of Open Public Electric Vehicle Direct Current Fast Chargers," 07 04 2022. [Online]. Available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4077554. [Accessed 01 August 2022].

- [12] J. H. a. A. Mollica, "Is it Cheaper to Charge an Electric Vehicle than to Buy Gas?," WSJ, 29 November 2021. [Online]. Available: <https://www.wsj.com/story/is-it-cheaper-to-charge-an-electric-vehicle-than-buy-gas-ea3e1b9f>. [Accessed August 2022].
- [13] Alabama Department of Economic and Community Affairs, "Electric Vehicle Charging Infrastructure Program," 28 7 2022. [Online]. Available: <https://adeca.alabama.gov/ev/>. [Accessed 11 August 2022].
- [14] Alabama Department of Economic and Community Affairs, "Governor awards \$4.1 million to install electric vehicle charging stations," 10 06 2021. [Online]. Available: <https://adeca.alabama.gov/wp-content/uploads/Electric-Vehicle-Projects-Awarded-as-of-August-2021-1.pdf>. [Accessed 11 August 2022].
- [15] L. Hodge, "Rivian Teases Jobs For Georgia If The State Considers Direct Sales," Jalopnik, 14 March 2022. [Online]. Available: <https://jalopnik.com/rivian-teases-jobs-for-georgia-if-the-state-considers-d-1848650167>. [Accessed July 2022].
- [16] L. Lowery, "Georgia bill that would allow EV direct sales stalls in Senate," Repairer Driven News, 24 March 2022. [Online]. Available: <https://www.repairerdrivennews.com/2022/03/24/georgia-bill-that-would-allow-ev-direct-sales-stalls-in-senate/>. [Accessed July 2022].
- [17] City of Charlotte, "Action Area 6: Strive Toward 100% Zero Carbon City Fleet By 2030," 2022. [Online]. Available: <https://charlottenc.gov/sustainability/seap/Pages/climate/ZeroCarbonCityFleet.aspx>. [Accessed August 2022].
- [18] Mass Transit, "It's official: PSTA is going green," 9 December 2021. [Online]. Available: <https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.masstransitmag.com%2Fbus%2Fvehicles%2Fhybrid-hydrogen-electric-vehicles%2Fpress-release%2F21249640%2Fpinellas-suncoast-transit-authority-psta-its-official-psta-is-going-green&data=05%7C>. [Accessed August 2022].
- [19] World Resources Institute, "Dataset of Electric School Bus Adoption in the United States," 1 May 2022. [Online]. Available: https://datasets.wri.org/dataset/electric_school_bus_adoption. [Accessed 12 August 2022].
- [20] CALSTART, "Zeroing in on ZEBs, December 2021," December 2021. [Online]. Available: <https://calstart.org/zeroing-in-on-zeb/>. [Accessed 12 August 2022].
- [21] V. Tomlinson, "Arrival announces High Voltage Battery Module assembly plant in Charlotte, N.C.," Arrival, 06 December 2021. [Online]. Available: <https://arrival.com/us/en/news/arrival-announces-high-voltage-battery-module-assembly-plant-in-charlotte-nc>. [Accessed 12 August 2022].
- [22] D. Flessner, "GE Appliances goes electric with freight vehicles in Tennessee, Georgia, Kentucky," 06 07 2022. [Online]. Available: <https://www.timesfreepress.com/news/business/aroundregion/story/2022/jul/06/ge-appliances-goes-electric-trucks/572262/>. [Accessed 12 August 2022].
- [23] J. Bogage, "USPS will make 40% of its new trucks electric, up from 10%," The Washington Post, 20 July 2022. [Online]. Available: <https://www.washingtonpost.com/business/2022/07/20/usps-electric-trucks/>. [Accessed 12 August 2022].