Credit: SAE Int'l

Future Technology Powered by Electrification

Transportation Coordinating Committee (TCC) Meeting

04.16.21

Agenda

- Why?
- History & Overview
- Challenges & Opportunities
- Existing Policy & Activity
- Discussion & Next Steps

Why?

- Future mobility technology will be powered by electricity or other alternatives, not petroleum
- Raise collective awareness
- Explore a regional electrification planning program

History of EVs in the U.S.

1906

The 100 Mile
Fritchle Electric

The Only Electric Guaranteed to Go 100 Miles on One Charge,

MODEL "A" VICTORIA PHAETON.

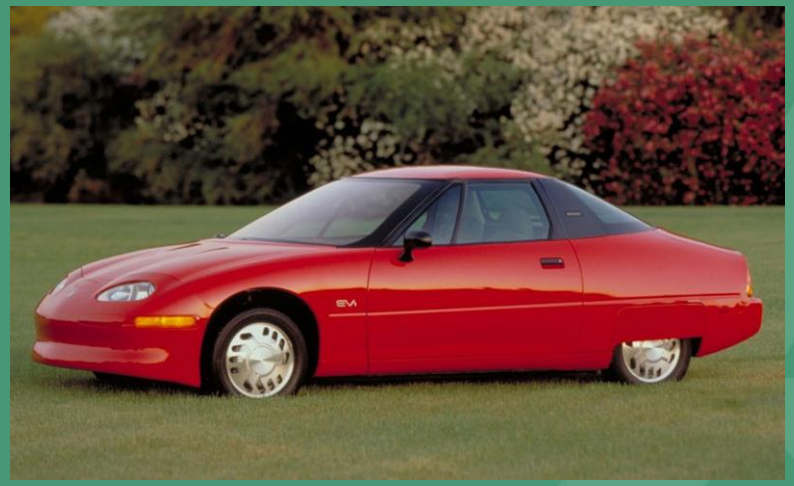
The Victoria Phaeton shown here, is an ideal lady's carriage for city and country use. Its artistic and impressive body design, its superb painting and upholstering make it the most attractive lady's car ever offered to the public.

Harry L. Cort, Sole Agent

Moore Theatre, Phone Main 6103.

Can deliver 10 days after order is placed. Guaranteed against defective parts, material and workmanship for one year from date of delivery.

1967 - 1990



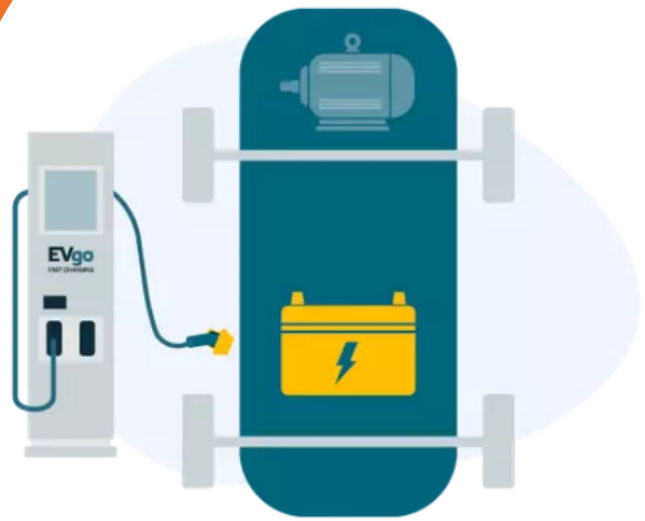
Today

EV – electric vehicle

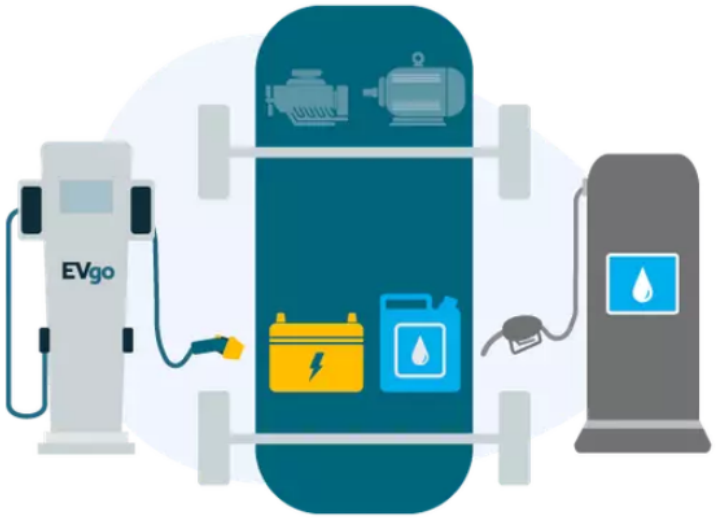
Types of Electric Vehicles

Credit: Evgo
https://www.evgo.com/ev-drivers/types-of-evs/

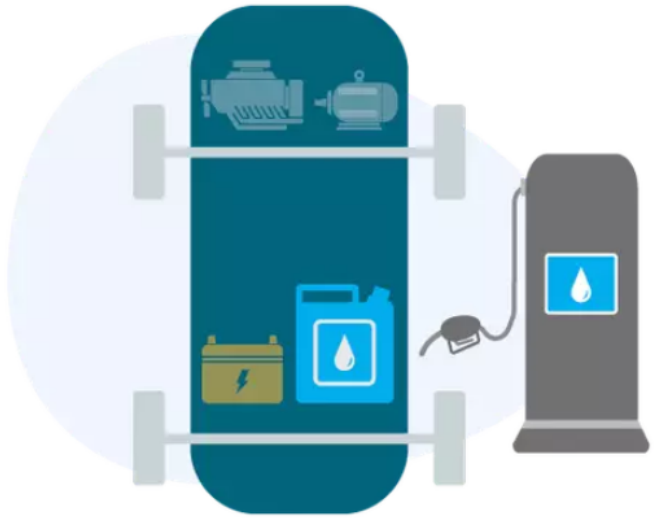
A brief overview of EV options



Battery Electric Vehicles (BEVs)
Powered solely by an electric battery, with no gas engine parts. Most BEVs are capable of fast charging and L2 charging. Zero emissions.



Plug-in Hybrid Electric Vehicles (PHEVs)
Similar to a Hybrid, but with a larger battery and electric motor. Has a gas tank and a charging port. Can charge by using L2 chargers.

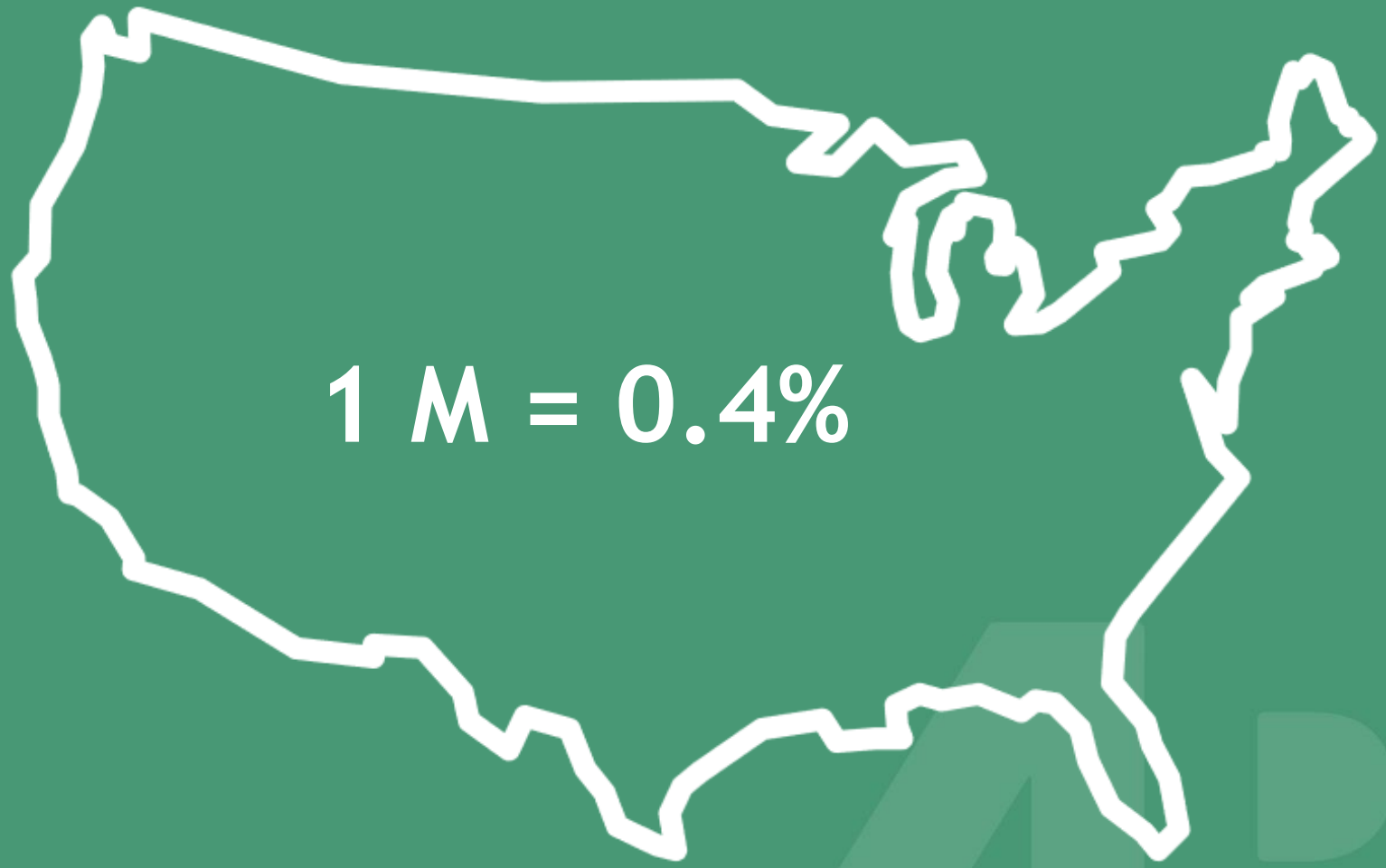


Hybrid Electric Vehicles (HEVs)
Low-emission vehicles that use an electric motor to assist gas-powered engines. All energy comes from gasoline. Cannot charge with EVgo.

Electric Vehicle Advantages

- No tailpipe emissions
- Less maintenance
- Charge using a variety of energy sources
- Flexible energy use
- Will achieve cost parity with ICE (internal combustible engine) vehicles by 2023

National Trends (2020)



2% of all new vehicle sales in U.S. are plug-in EV

U.S. Charging Infrastructure

2021

- 80% of EV owners charge at Home
- 40% of Americans do not live in a single-family home

2030

- Biden Administration Infrastructure Plan proposal ($50 billion) for 28K stations by 2030
- Achieves half of expected charging demand

Challenges & Opportunities

- Cost of electricity in GA is relatively cheaper
- Gov’t, Freight, and Transit Fleet Transitions
- Utility Companies Advancing Electrification
- Inequitable Access to EVs & Charging
- Petroleum Companies Evolving
- Battery Technology and Supply
- Grid Modernization
- Land Use/Built Environment Compatibility
- Shared Mobility Demand and Access to Elec.
- Local Revenue Generation
- Future Proofing
- State Energy Policies & Programs

EV Market Growth*

- EV share of all new vehicle sales in the US to grow from 3% (2021) to 8.5% (2025)
- Tesla 2nd in overall new market share gain
- CA is losing in market share; GA is growing
- GA once led US, until state tax credit repealed; Atlanta is the overwhelming sub-market
- EVs will dominate global powertrains by 2037 (49 new models to be released over the next three years, with a range of 200 miles or more - most at 300)

*Cox Automotive (through Sep. 2020 – during The COVID economy!)

Gov't, Freight, & Transit Fleets

- 650,000 U.S. gov't EVs by 2040
- UPS reserves 125 Tesla Tractors
- 100,000 Amazon EVs by 2030
- Entire FedEx fleet by 2040
- MARTA deploying six e-buses this year
- Local fleet transitions
- School Districts

Georgia Power Charging Overview (2020)

Level1

110V

4 miles per hour charge
1.3kW

J1772 plug

Level 2

208V

24 miles per hour charge
6.6kW / 7.7kW

J1772 plug

Fast Charging

480V

Fully charge in 5-60min
50kW, 150kW, 350kW

Moving People

- COMMERCIAL CHARGING
- BUSES

Moving Goods

- LIFT TRUCKS
- SEAPORTS
- AIRPORTS
- eTRU
- SHORT HAUL TRUCKS

3,052
EV Plugs in GA

28
Electric Buses in GA by mid-2021

5,000
Forklift Conversions to Electric

27
Ship-to-Shore Cranes

Ground Support Equipment at International Terminal

Farmers' Market

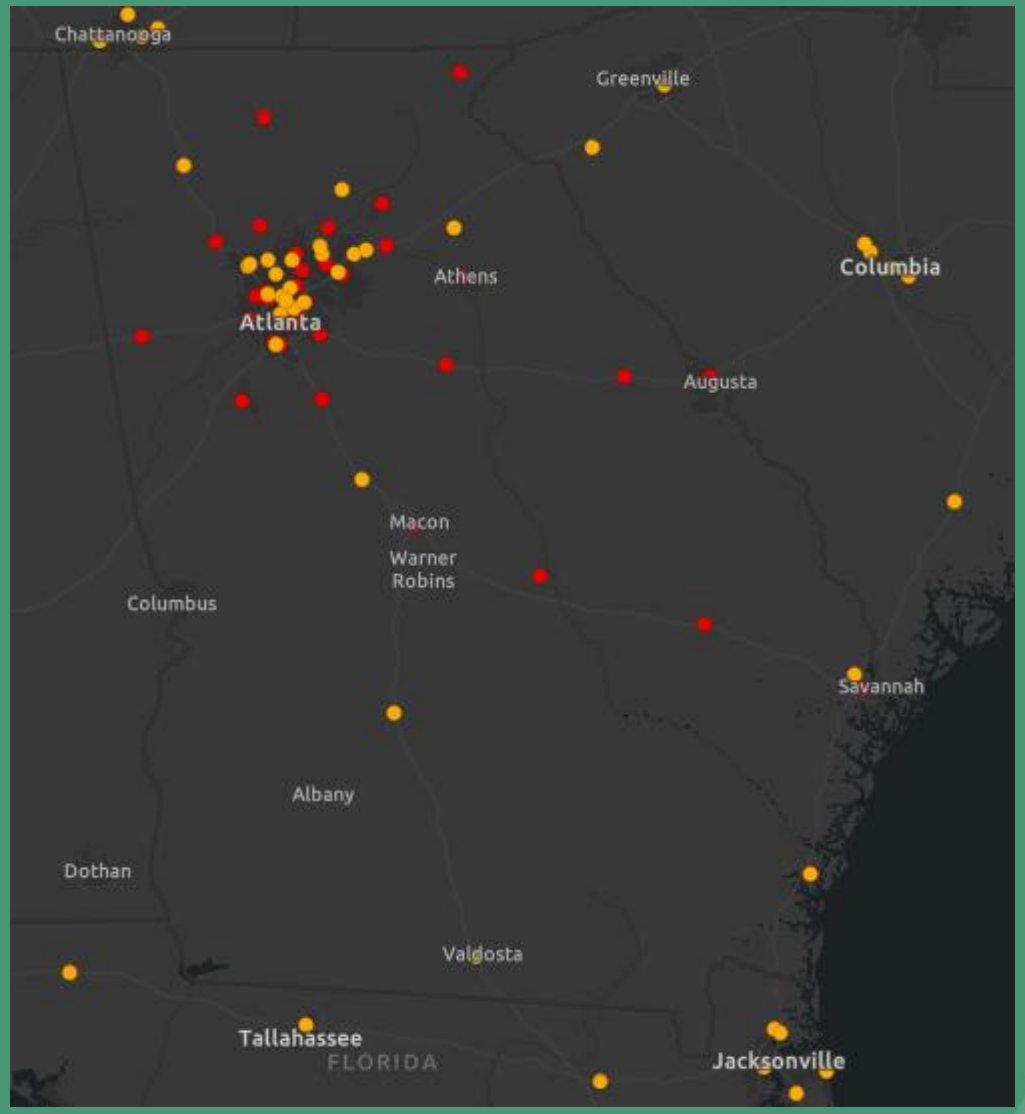
amazon

ups

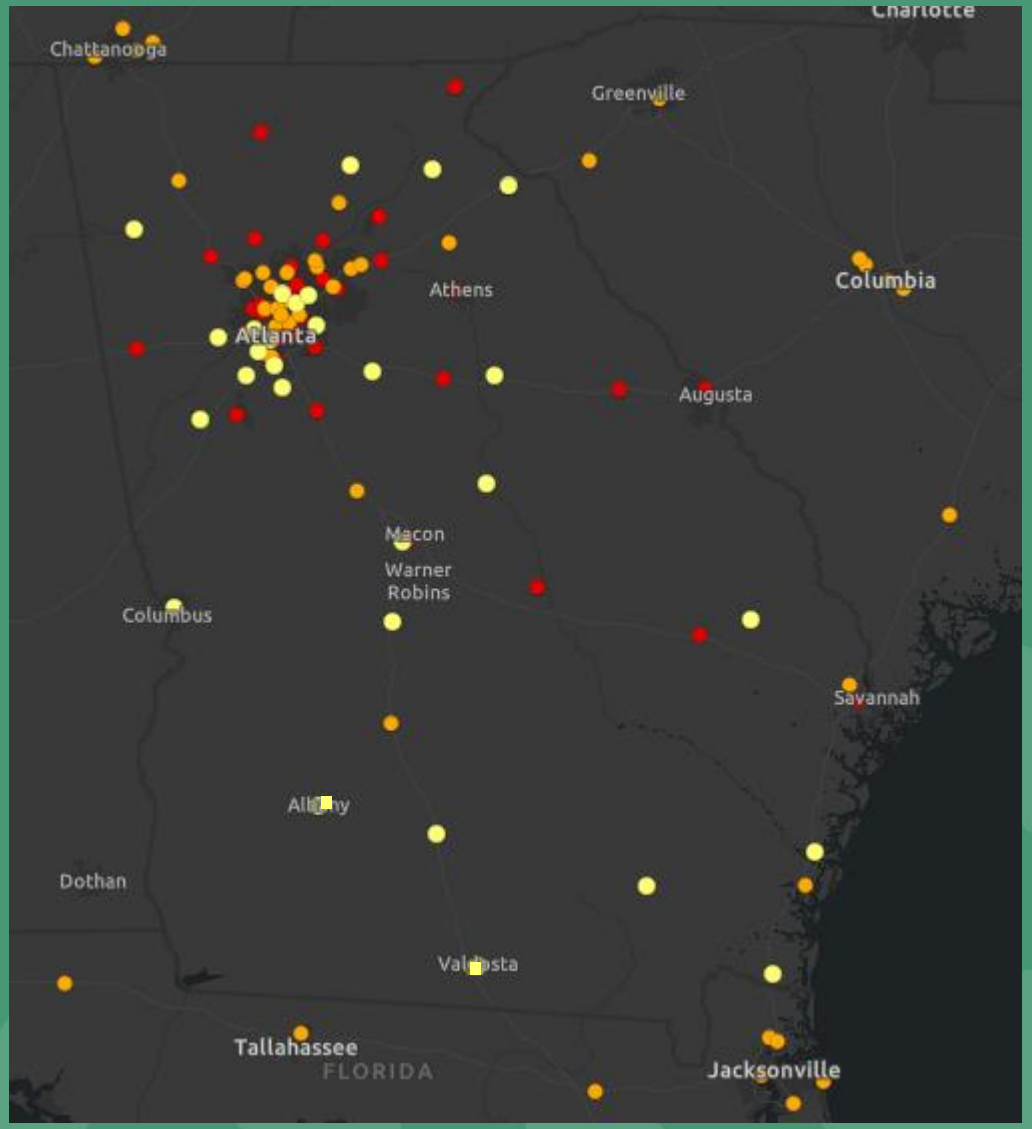
Ryder

Georgia Power's Corridor Vision

Current State



Near-Future State



Legend

- GPC Phase 1
- EVgo
- Tesla
- Electrify America
- GPC Phase 2 Potential Site

Georgia Power: 2020

Land Use & Built Environment

- Planning & Zoning
- Building Codes
- Parking Design
- Gas Stations
- Retail & Shopping
- Single-Family vs. Multi-Family Residential accommodations
- Curbside Management

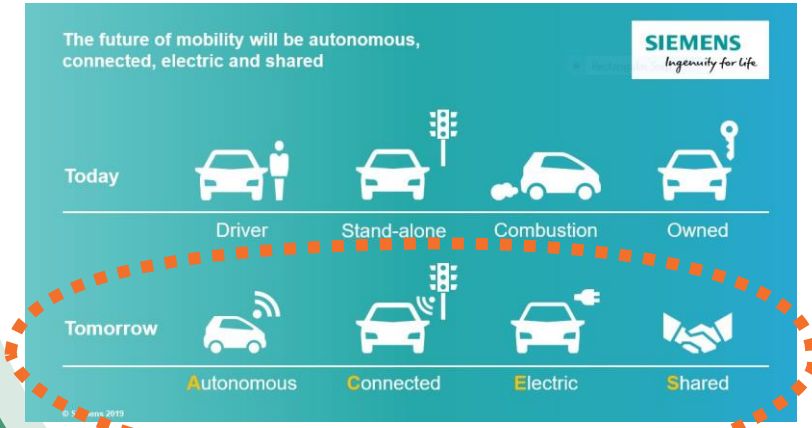
Other State Energy Policies & Programs*

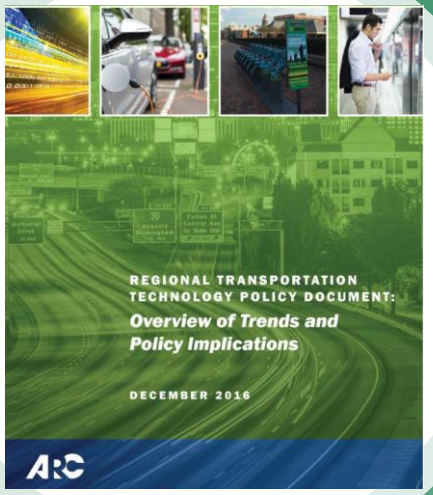
- North Carolina:
  - 80K EVs by 2025 goal;
  - 100% of light and medium duty EV sales by 2030
- Tennessee: 200K EVs by 2028
- Florida EV Roadmap & Master Plan
  - Public Service Commission, FDOT, Energy Office to develop plan for transportation electrification – to develop charging infrastructure plans along corridors
- Georgia Power:
  - Offers time-of-use rates (cheaper to charge during off-peak)
  - Rebates for home-based Level 2 charger installations
- Duke Energy Pilot (NC/SC):
  - $10 million program to deploy DC fast charging along major corridors in SC
  - $76 million program for EV infrastructure vehicle to grid (school bus)
- Dominion Energy Pilot – EV infrastructure & vehicle-to-grid
- Florida Power & Light
  - 1,000 charging stations at 100 locations
  - Universal/compatible

Credit: SEEA SOUTHEAST ENERGY EFFICIENCY ALLIANCE

Existing Regional Policy Framework

- 2016 Transportation Technology Document
- ARC Green Communities Initiative
- “ACES” (autonomous, connected, electric, shared) is the future





Green Communities

Recent Regional Activity

- Walton EMC investing in charging infrastructure
- City of Atlanta building code requiring pre-wiring for charging in new construction
- Cox Automotive PIVET fleet electrification program
- Georgia Power (gerogiapower.com/ev) :
  - Community Charging ($6 million/ 3 years for Level 3)
  - Make Ready ($18 million / 3 years for infrastructure to the charger)
  - Electrify America
  - Lyft partnership
  - MARTA park-n-ride charging stations at nine rail stations

Acknowledgements

- Georgia Power (Georgiapower.com/ev)
- UPS
- Southeast Energy Efficiency Alliance
- Blue Bird
- Cox Automotive
- HNTB
- Jacobs
- Strategy Blue, LLC
- Clean Cities-Georgia
- ITS Georgia (October 2020 chapter meeting on electrification)
- ARC Research & Analytics, Natural Resources, and Mobility Services Groups

Next Steps (for discussion)

- Set regional goals and targets for electrification
- Identify priority areas for public charging infrastructure
- Prioritize funding for public charging infrastructure and EV purchases
- Incentivize local EV-ready zoning and building code ordinances
- Measure and track emissions reduction
- Ensure equitable access to charging infrastructure

https://smart.columbus.gov/playbook

Discussion & Next Steps

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