Session #1: Roadmap to Fleet Electrification

February 22, 2023

NC CLEAN ENERGY TECHNOLOGY CENTER

NAFA Fleet Management Association

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2023 SFT Webinar Series Sponsors

Upcoming Webinar Sessions

- 03/23 MD/HD Charging Infrastructure Challenges and Considerations
- 04/13 Lessons Learned and Best Practices in Fleet Electric Vehicle Charging Infrastructure Deployment

NC STATE UNIVERSITY

https://www.sustainablefleetexpo.com/

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Format

- Q&A at the end
- Submit questions and comments to “Chat”
- Scheduled for 2:00p-3:15p
- Handout
- Recording

Roadmap to Fleet Electrification
February 22, 2023

2:00-2:05 **Rick Sapienza, NCCETC**--Introduction and Welcome

2:05-2:25 **Sarah Fischer, Electrification Coalition**—Roadmap to Fleet Electrification Overview

2:25-2:45 **Chris Davis, City of Charlotte NC**—Perspectives from the City of Charlotte

2:45-3:00 **Robert Horton, City of Atlanta GA**—Perspectives from the City of Atlanta

2:00-3:15 **Q&A**

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Electrification Coalition

Fleet Electrification Roadmapping Overview

February 2023

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Today's Topics

- Planning Fleet Electrification
- Vehicle Identification
- Charging Strategy Considerations
- Charging Infrastructure Deployment

Electrification Planning Tasks

1. Gathering Fleet Usage and Storage Data
2. Initial Fleet Analysis & Transition Timeline
3. Identification of Priority Charging Locations & Site Evals
4. Procurement Planning, Grant & Incentive Research

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What Data to Track?

- Vehicle Data:
  - VIN
  - Year, Make, Model
  - Fuel Type
  - Estimated Life (Total and Remaining)
  - Miles Traveled Per Year (Odometer Readings and Date of Readings)
- Use Data:
  - Primary Driver
  - Department
  - Equipment/ Cargo Needs
  - Storage Location/ Use Route
  - Maximum Daily/ Weekly Usage (miles)

Why Fleet Analysis

- Helps outline what assets the fleet owns
- Can help start the process of fleet right-sizing
- Can highlight the actual use-needs of the fleet and what vehicle applications are truly needed
- Identifies the total cost of ownership and can help make the “business case” for electrification
- Can be used to create a long-term management and procurement plan for transitioning to electric vehicles

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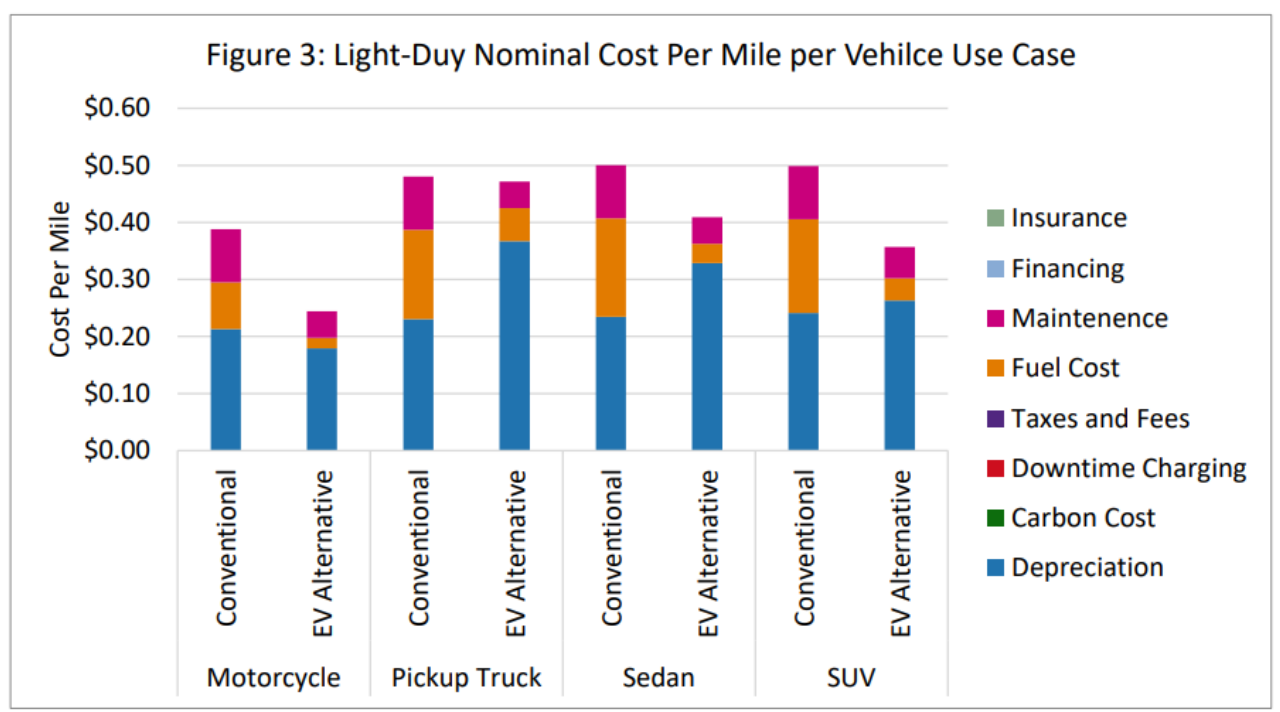
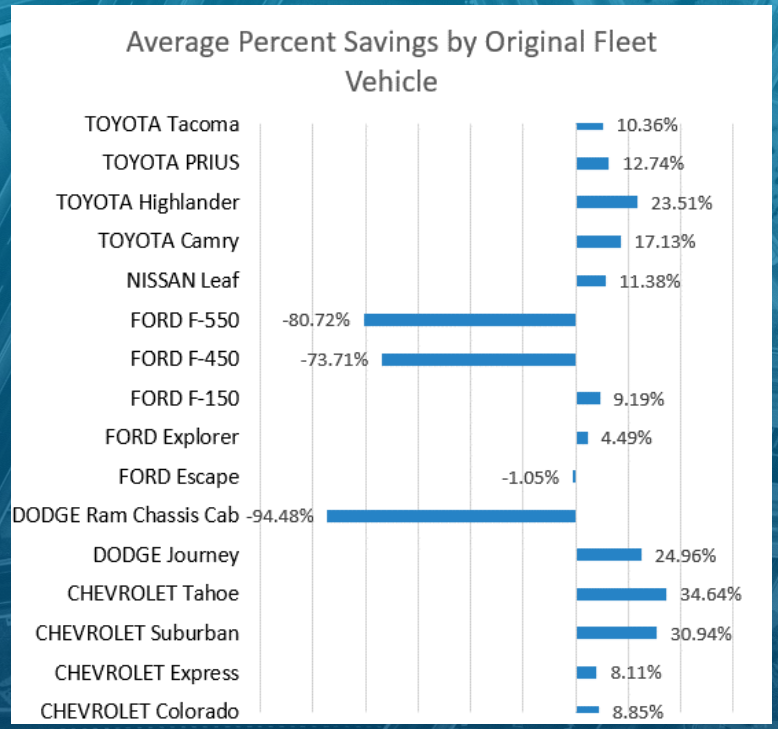
Why DRVE?

Dashboard for Rapid Vehicle Electrification

- Identify which current fleet vehicles are the best candidates for electrification today and in the future
- Standard fleet analysis can be costly, take months, and be difficult to interpret
- Through the DRVE Tool, the EC has created a free, accessible, easy-to-use analysis tool that provides total cost of ownership and other data in minutes
- Can integrate a number of different variables including: fuel costs, purchase prices, federal and state incentives, infrastructure costs, insurance costs, etc.

DRVE Tool Results





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DRVE Tool Results

Vehicle Summary

Row Labels	EV Average NPV	EV Average CPM	Original Average NPV	Avg Percent Savings from EVs	Liklihood of Savings from EVs	Conventional Vehicle	EV Vehicle
Pickup Truck							
CHEVROLET Colorado							
1GCDT14E098145851	$33,611.83	$0.40	$36,875.47	8.85%	Likely	2020 Chevrolet Colorado 2WD ICE	2022 Ford F-150 Lightning (Standard Range) BEV
1GCDT14E498145450	$33,611.83	$0.40	$36,875.47	8.85%	Likely	2020 Chevrolet Colorado 2WD ICE	2022 Ford F-150 Lightning (Standard Range) BEV
1GCHTBE31G1111556	$33,611.83	$0.40	$36,875.47	8.85%	Likely	2020 Chevrolet Colorado 2WD ICE	2022 Ford F-150 Lightning (Standard Range) BEV
FORD F-150							
1FTVX1EF7BKD87741	$33,611.83	$0.40	$37,012.84	9.19%	Likely	2020 Ford F150 Pickup 2WD ICE	2022 Ford F-150 Lightning (Standard Range) BEV
TOYOTA Tacoma							
5TFUU4EN5EX106721	$33,611.83	$0.40	$37,496.92	10.36%	Likely	2021 Toyota Tacoma 2WD ICE	2022 Ford F-150 Lightning (Standard Range) BEV
Sedan							
NISSAN Leaf							
1N4AZ0CP4FC308532	$28,808.04	$0.34	$32,507.35	11.38%	Likely	2021 Nissan Altima ICE	2022 Nissan Leaf (40 kW-hr battery pack) BEV
1N4AZ0CP5FC304098	$28,808.04	$0.34	$32,507.35	11.38%	Likely	2021 Nissan Altima ICE	2022 Nissan Leaf (40 kW-hr battery pack) BEV
TOYOTA Camry							
4T1BB46K38U060972	$28,808.04	$0.34	$34,763.90	17.13%	Likely	2022 Toyota Camry ICE	2022 Nissan Leaf (40 kW-hr battery pack) BEV
4T1BB46K88U061681	$28,808.04	$0.34	$34,763.90	17.13%	Likely	2022 Toyota Camry ICE	2022 Nissan Leaf (40 kW-hr battery pack) BEV
4T1BB46K88U061941	$28,808.04	$0.34	$34,763.90	17.13%	Likely	2022 Toyota Camry ICE	2022 Nissan Leaf (40 kW-hr battery pack) BEV
TOYOTA PRIUS							
JTDKN3DUXC5423846	$26,682.04	$0.32	$30,576.51	12.74%	Likely	2022 Toyota Prius ICE	2022 Chevrolet Bolt EV BEV
SUV							
CHEVROLET Suburban							
1GNSK5KC4FR649223	$29,976.35	$0.36	$43,403.19	30.94%	Very Likely	2020 Chevrolet Suburban C1500 2WD ICE	2021 Volkswagen ID.4 Pro BEV
CHEVROLET Tahoe							
1GNSKDEC1GR371534	$28,292.63	$0.34	$43,284.18	34.64%	Very Likely	2020 Chevrolet Tahoe C1500 2WD ICE	2022 Hyundai Kona Electric BEV
1GNSKDEC5GR378437	$28,292.63	$0.34	$43,284.18	34.64%	Very Likely	2020 Chevrolet Tahoe C1500 2WD ICE	2022 Hyundai Kona Electric BEV
DODGE Journey							
3C4PDDBG3FT684624	$28,292.63	$0.34	$37,701.91	24.96%	Very Likely	2020 Dodge Durango RWD ICE	2022 Hyundai Kona Electric BEV
3C4PDDBG5FT684625	$28,292.63	$0.34	$37,701.91	24.96%	Very Likely	2020 Dodge Durango RWD ICE	2022 Hyundai Kona Electric BEV
FORD Escape							
1FMCU59349KA17957	$34,428.76	$0.41	$34,071.37	-1.05%	Likely	2021 Ford Escape AWD ICE	2021 Ford Mustang Mach-E AWD BEV
1FMYU96H65KD90859	$34,428.76	$0.41	$34,071.37	-1.05%	Likely	2021 Ford Escape AWD ICE	2021 Ford Mustang Mach-E AWD BEV
FORD Explorer							
1FM5K8AR2GGD05718	$36,544.86	$0.44	$38,261.95	4.49%	Likely	2020 Ford Explorer AWD ICE	2021 Ford Mustang Mach-E AWD BEV
1FM5K8AR5GGD05714	$36,544.86	$0.44	$38,261.95	4.49%	Likely	2020 Ford Explorer AWD ICE	2021 Ford Mustang Mach-E AWD BEV
1FM5K8AR9GGA02080	$36,544.86	$0.44	$38,261.95	4.49%	Likely	2020 Ford Explorer AWD ICE	2021 Ford Mustang Mach-E AWD BEV
TOYOTA Highlander							
JTEEW41A592035892	$28,260.98	$0.34	$36,948.29	23.51%	Very Likely	2021 Toyota Highlander ICE	2022 Chevrolet Bolt EUV BEV

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Estimating Charging Needs Per Site

Current Vehicle	Annual VMT	Estimated Weekly VMT	Replacement Vehicle	Replacement Vehicle Range	Full Charges Needed Per Week
Chevrolet Colorado	15,600	300	Ford F-150 Lightning	230	1.3
Ford F-150	12,300	237	Ford F-150 Lightning	230	1.0
Toyota Camry	8,500	163	Nissan LEAF 40 kWh	149	1.1
Toyota Prius	18,000	346	Nissan LEAF 60 kWh	212	1.6
Ford Escape	9,500	183	VW ID.4 Pro	280	0.7
Chevrolet Express	13,200	254	Ford E-Transit	126	2.0
Chevy Malibu	25,000	481	Chevy Bolt	247	1.9

*Could feasibly use 2 charging ports for this whole group.

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Evaluate Charging Technology Types

Networked

Also known as “smart chargers,” these chargers are connected remotely to a larger network. Users can start/stop a charge, check the status, and (if applicable) pay through a mobile app.

Non-Networked

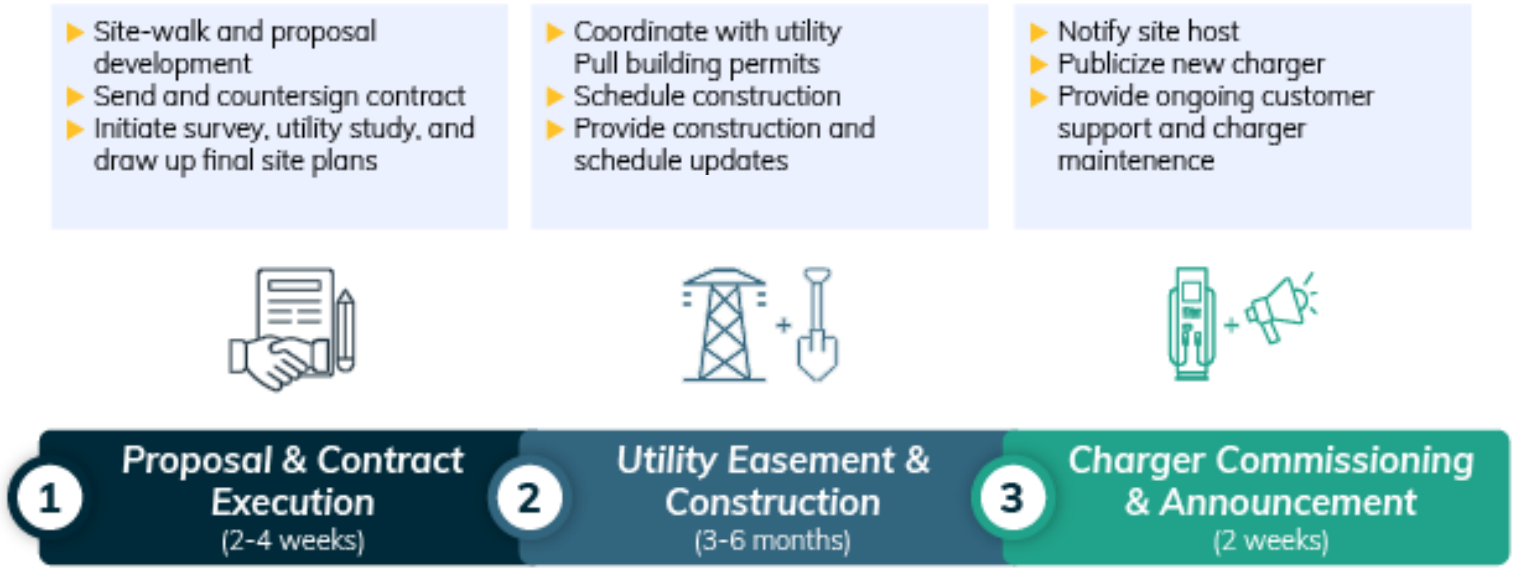
Stand-alone units that are not part of a connected network. They are not accessible remotely and cannot track charging data, but they are often less expensive to install and operate.

How to Identify Lowest Hanging Fruit

Vehicle Considerations	Site Considerations
Light-duty may be easier to transition than heavy-duty vehicles due to current TCO and model availability	Sites the organization owns (as opposed to leasing) may be easier to install charging infrastructure at
Vehicles scheduled for replacement soon are good to prioritize for electrification	If most vehicles are stored at one or two locations, those sites may be good to prioritize
Vehicles that have short, set routes may be easier to transition	Fleet depots situated in disproportionately impacted communities should be prioritized
Vehicles that return to a depot at night will be easier to plan charging for	Sites preparing for/ undergoing construction can install charging infrastructure at a lower cost

Plan Site Evaluations in Advance

- Sample installation timeline shown estimates 7 – 8 months
- With staff shortages and transformer supply chain delays, some utilities are quoting **11 – 16 months from start to finish** depending on the type of infrastructure needed



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What to Bring to Site Evaluations

- Types of charging equipment you want to install (exact models if applicable)
- Quantity of charging stations you want to install immediately (and the total number of charging stations you expect to install in the future)
- Preferred locations for the charging stations based on fleet operations

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What to Take From Site Evaluations

- The existing electrical capacity of the site
- The required electrical capacity to support X number of charging stations
- Any electrical upgrades that would be required from the utility to make the site capable of supporting charging infrastructure *(transformers, new breaker panels, etc.)*
- Any land and construction activities required *(trenching, boring, paving, curb cuts, bollards, etc.)*
- The timeline for the required electrical/ construction upgrades
- The overall cost for installing proposed charging infrastructure

Stakeholders to Start Engaging

Fleet Managers & Maintenance Staff

Fleet Vehicle Users

Procurement Authorities

Facility Owners/ Managers

Potential External Stakeholders:

Utility Representatives

Electricians

Vehicle/ EVSE Vendors

EV Funding Finder Tool

Step 1: I represent a...

- City
- Rural Area
- School
- Freight/Shippers and Carriers
- EV Advocate or Community Organization
- Business
- Non-Profit Transportation Group
- Individual
- State

Step 2

Select Funding Scenarios

- **Purchase or Lease a Light-Duty Vehicle**
  Funds to purchase or lease a light-duty vehicle (ex: passenger car)
- **Purchase Light-Duty Charging Infrastructure**
  EV charging infrastructure incentives for light-duty vehicles
- **Purchase or Lease a Medium- or Heavy-Duty Vehicle**
  Funds to purchase or lease a medium- or heavy-duty vehicle (ex: school bus)
- **Purchase Medium- or Heavy-Duty Charging Infrastructure**
  EV charging infrastructure for medium- and heavy-duty vehicles
- **Support Workforce Development**
  Funds to train and ensure a workforce has the required skills and certifications
- **Access Technical Assistance**
  Funds to provide technical expertise to access EVs or EV infrastructure
- **Electrify Ports**
  Funding for shipping and transportation companies to electrify port transit
- **Grid Upgrades**
  Funding for updating and preparing the grid for at-scale EV adoption
- **Access Support Planning**
  Funding to ensure adequate planning of EV infrastructure

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EV Funding Finder Tool

Case Study: Powerberg is electrifying its city fleet

An employer of nearly 3,000 people, Powerberg has ample opportunity to electrify its public fleet with the new funding streams available. Powerberg's light-duty fleet takes city employees to monitor traffic while its heavy-duty vehicles assist city employees in transporting equipment to and from parks. To best take advantage of federal funds, Powerberg can:

- **Apply for Diesel Emissions Reduction Act (DERA) funds** to cover the cost of medium- or heavy-duty electric vehicles (EVs) and electric vehicle service equipment (EVSE). DERA guidance notes that multiple fleets can be combined to reach minimums if required.
- **Apply for funding under the Clean Heavy Duty Vehicle Program** to replace Class 6 and 7 vehicles with EVs.
- While National Electric Vehicle Infrastructure (NEVI) Alternative Fuel Corridors might not naturally align with city limits, city governments are a target audience for the $2.5 billion discretionary grant program. Cities should **work with state agencies to determine the next best locations for the build-out of the public EV charging stations**, not just along highways,

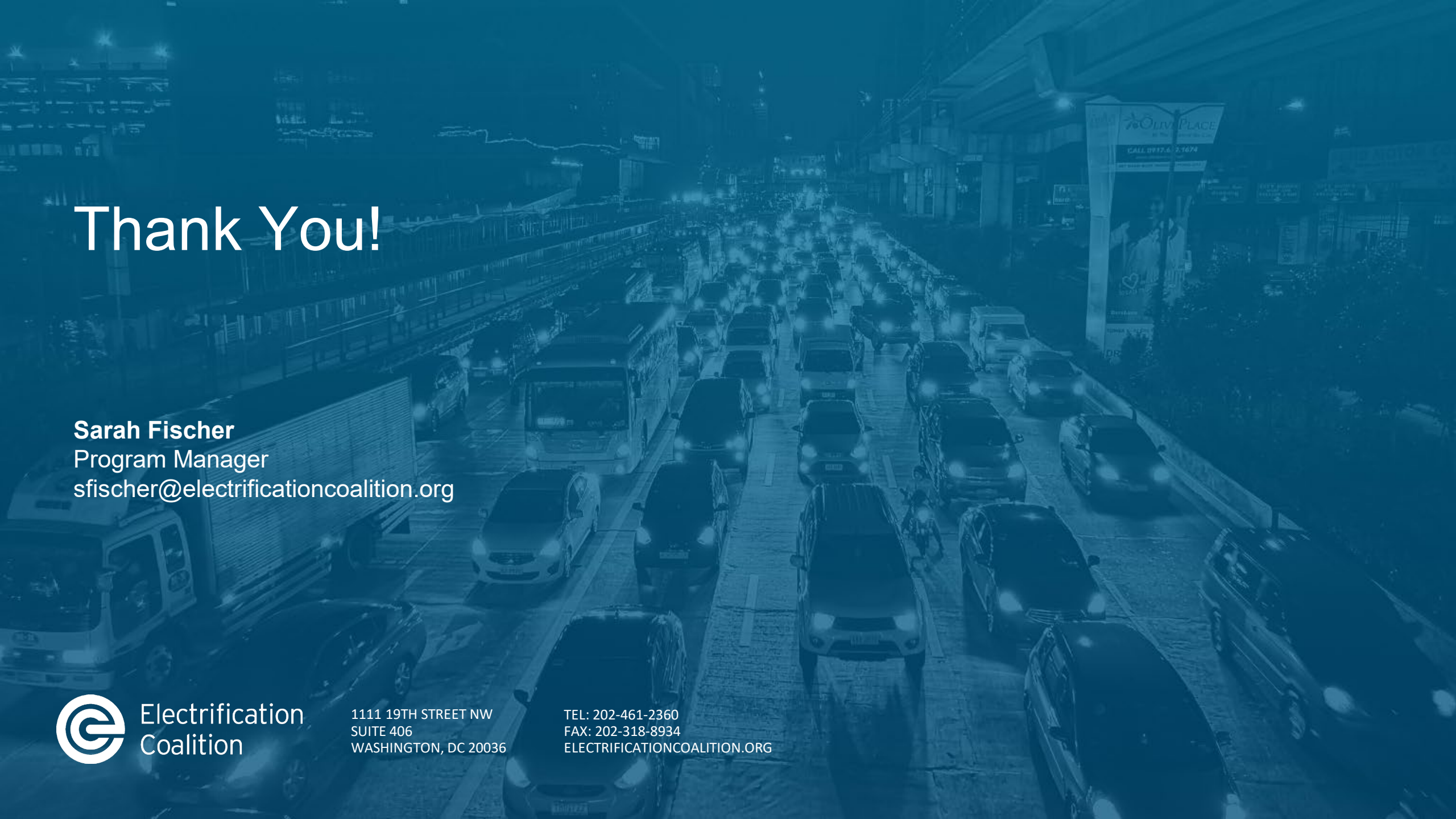
To accomplish your transportation electrification project consider utilizing or applying to:

Purchase a medium or heavy duty EVSE

- Alternative Fuel Vehicle Refueling Property Tax Credit (30C)
- Carbon Reduction Program
- Clean Heavy Duty Vehicle Program
- Congestion Mitigation and Air Quality Improvement
- Conservation Innovation Grants
- Electric or Low Emitting Ferry Pilot Program
- Environmental and Climate Justice Block Grants

Next Steps

1. Develop a core EV/EVSE team and schedule reoccurring meetings. (e.g. Fleet Management, Finance, Sustainability)
2. Collect fleet data and run DRVE analysis (VIN, Avg service life, VMT)
3. Identify best first candidates to electrify and explore procurement options
4. Keep up to date with state and federal announcements on fleet funding



Thank You!

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NAFA FLEET MANAGEMENT ASSOCIATION

- CDOT Fleet Manager for the City of Charlotte, NC
- 27 Years in Municipal Government
- Liaison for CDOT with City Fleet & Sustainability Teams
- Promoting a Sustainable & Resilient Future

Fleet Electrification Perspectives From Chris Davis

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A Transportation Transformation, The Shift to Electric Vehicles

WHY

Charlotte's Committed to the Quality of Life, Safety, and Health of Citizens

HOW

Plans, Policies, & Goals

WHAT

Reduce Emissions by striving to use Zero-Carbon Energy Sources by 2030

SEAP

STRATEGIC ENERGY ACTION PLAN

CITY of CHARLOTTE

CITY OF CHARLOTTE

WHY

HOW

WHAT

SUSTAINABLE AND RESILIENT FLEET POLICY

CHARLOTTE

Subject/Title
Sustainable and Resilient Fleet Policy

Date Effective
June 1, 2020

Revision Date Effective

Code Number
GS 18

City Manager

General Services
Responsible Department

POLICY STATEMENT

The City of Charlotte is committed to operating its vehicle fleet responsibly and sustainably. The City of Charlotte City Council unanimously passed the city's Strategic Energy Action Plan (SEAP) in December 2018. The SEAP is the city's comprehensive plan to reduce its carbon footprint through a number of building and fleet initiatives. The SEAP resolution states:

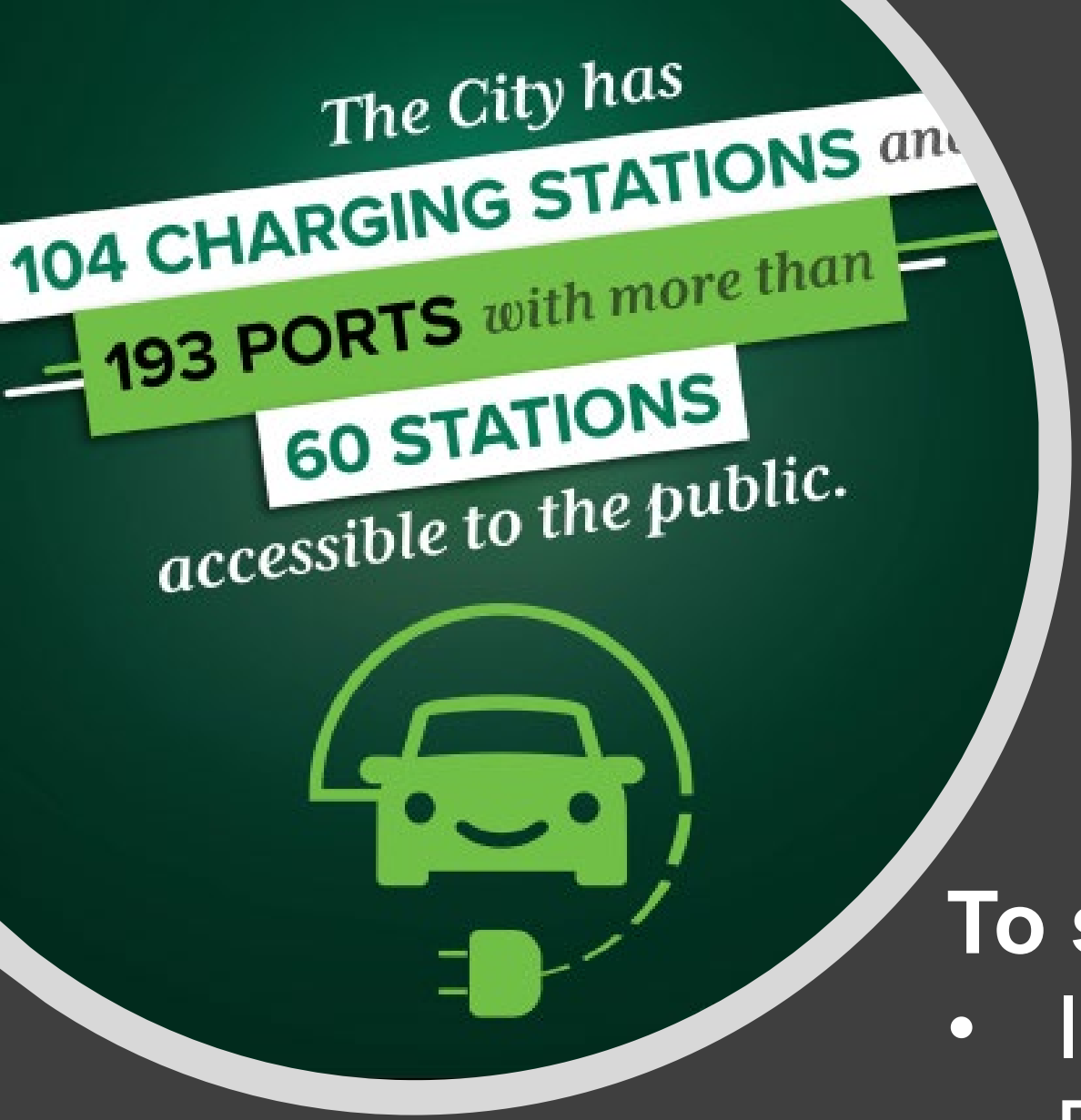
"NOW, THEREFORE, BE IT FURTHER RESOLVED that the City of Charlotte will strive to source 100% of its energy use in its buildings and fleet from zero carbon sources by 2030."

Shift Energy Demand From Fossil Fuels

Strive to Source 100% of Energy

from Zero-Carbon Sources

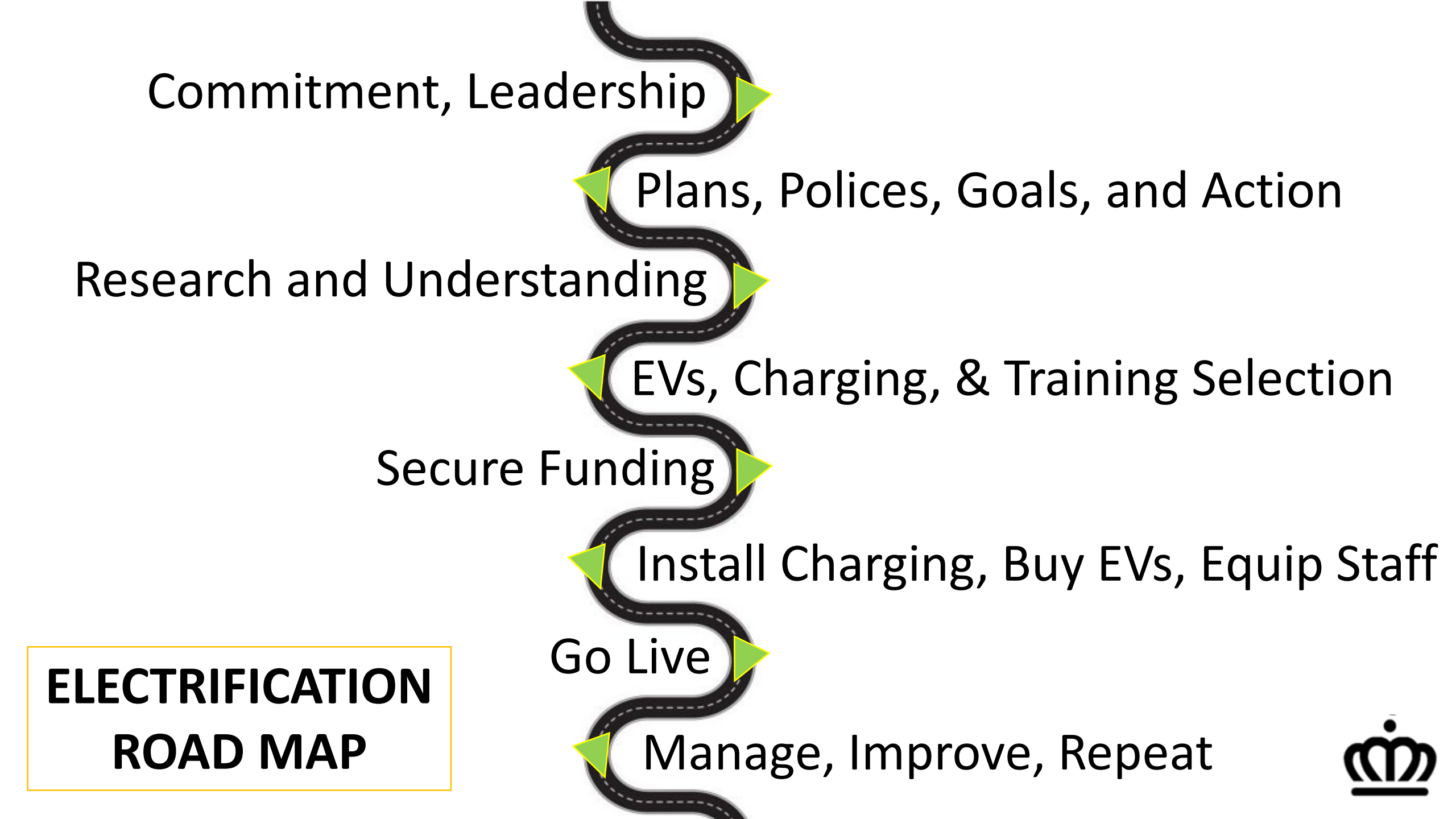
Purchase Low Emission Electric Vehicles



174 Electric Vehicles
in Service or on order

FY23
- EV Technician Training
- $1.45 million for Charging
- 55 EVs on Order

To succeed with EVs, commit to:
- Investing in Staff, and
- Purchasing & Maintaining EVs and EV Chargers


Commitment, Leadership
Plans, Polices, Goals, and Action
Research and Understanding
EVs, Charging, & Training Selection
Secure Funding
Install Charging, Buy EVs, Equip Staff
Go Live
Manage, Improve, Repeat
ELECTRIFICATION ROAD MAP

EVs are Increasingly Available and Capable

To be Successful with EVs

Know your Needs & Options

Learn, Become an EV Export

Battery Electric Vehicles

Battery Chemistries

Lithium-ion

Battery Chemistries

Reducing Reliance On Cobalt, Yet Improving Characteristic

Battery Chemistries

Lithium Iron Phosphate (LFP)

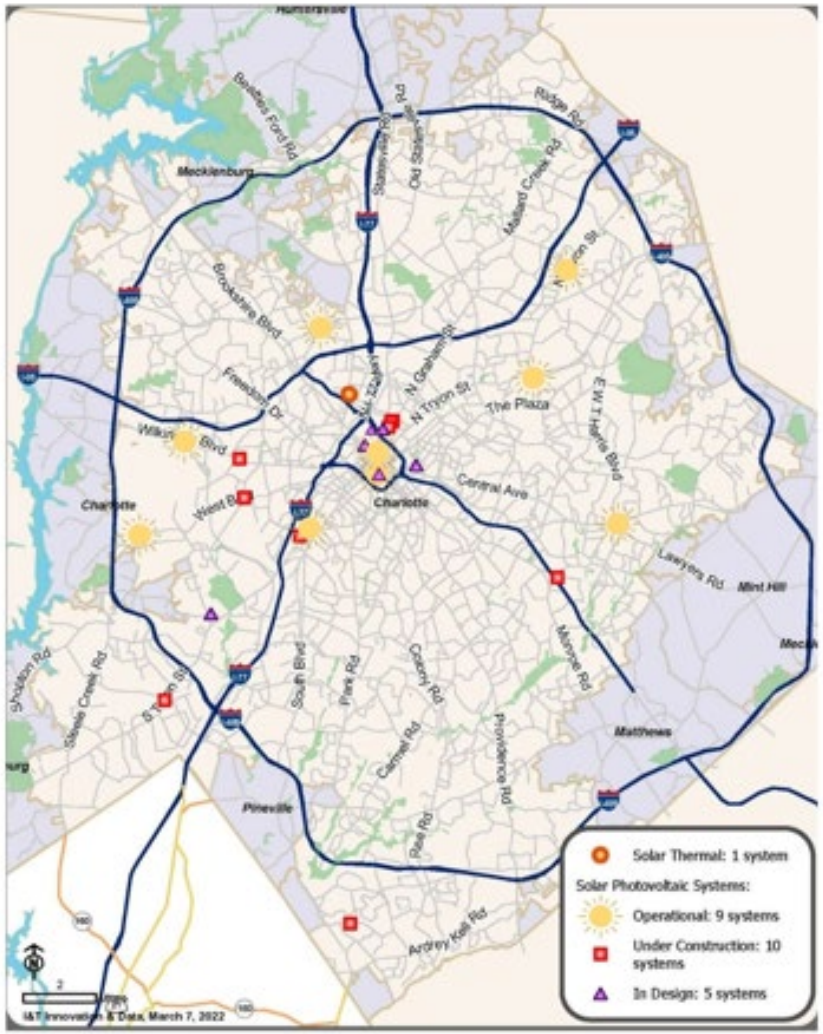
Expect Change and Improvement

CITY OF CHARLOTTE

Battery Storage

ENERGY GENERATION: CITY OF CHARLOTTE MUNICIPAL SOLAR ENERGY SYSTEMS

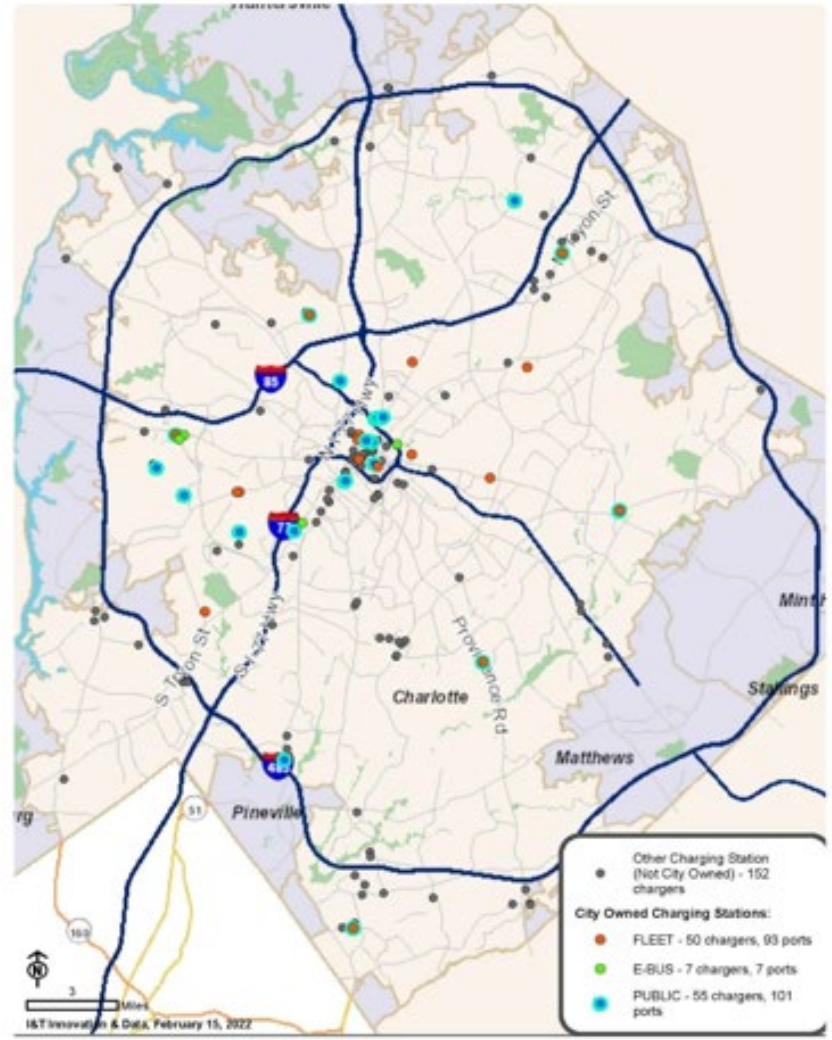
STRIVE TOWARD 100% ZERO-CARBON ENERGY FOR MUNICIPAL BUILDINGS AND FLEET BY 2030

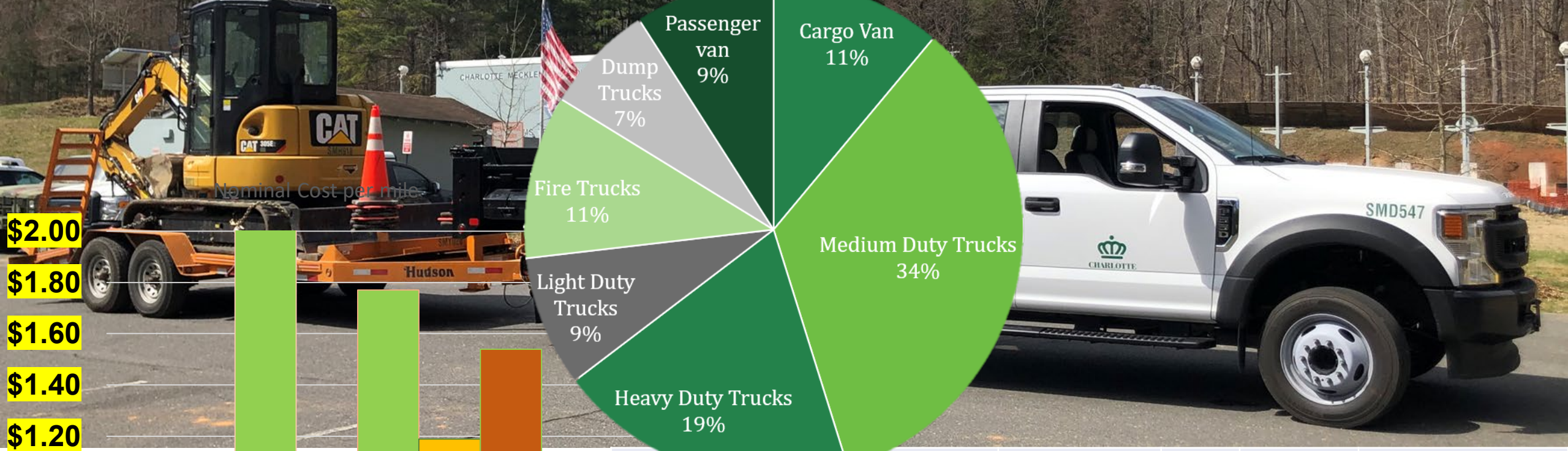


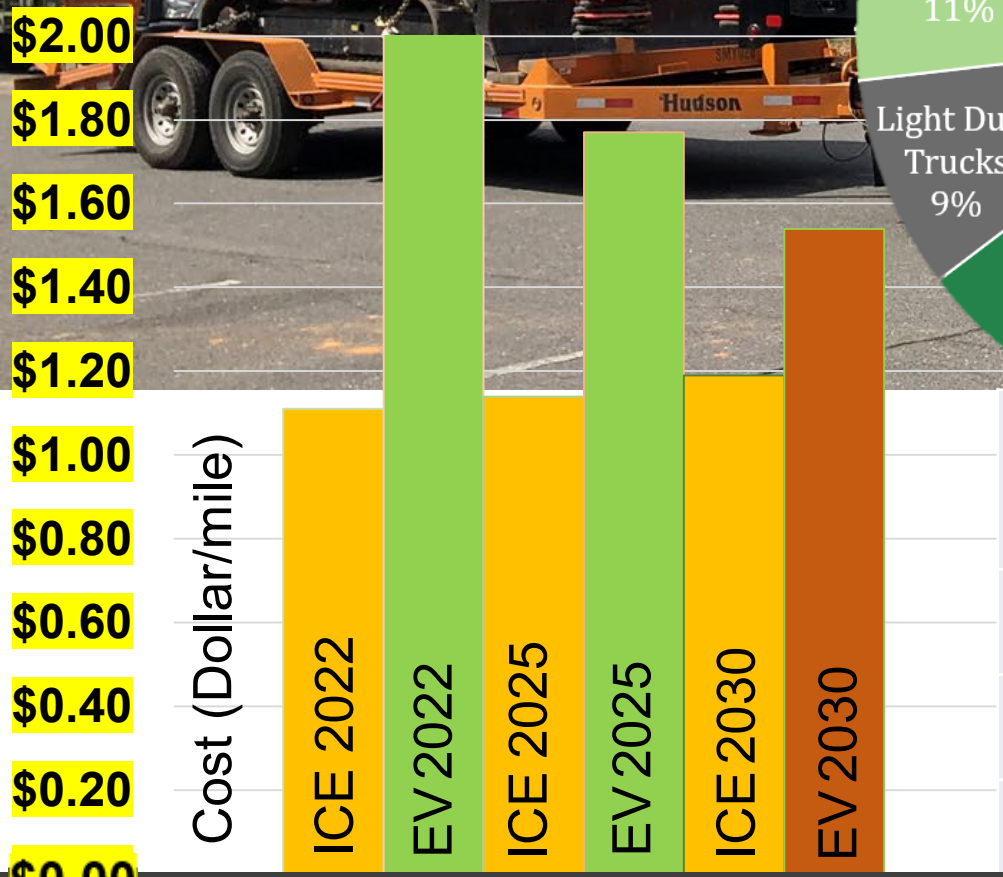
CITY of CHARLOTTE | SEAP

TRANSPORTATION: CITYWIDE ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

THE CITY OF CHARLOTTE HAS INSTALLED AND MANAGES 41% OF ALL CHARGING STATIONS IN CHARLOTTE.



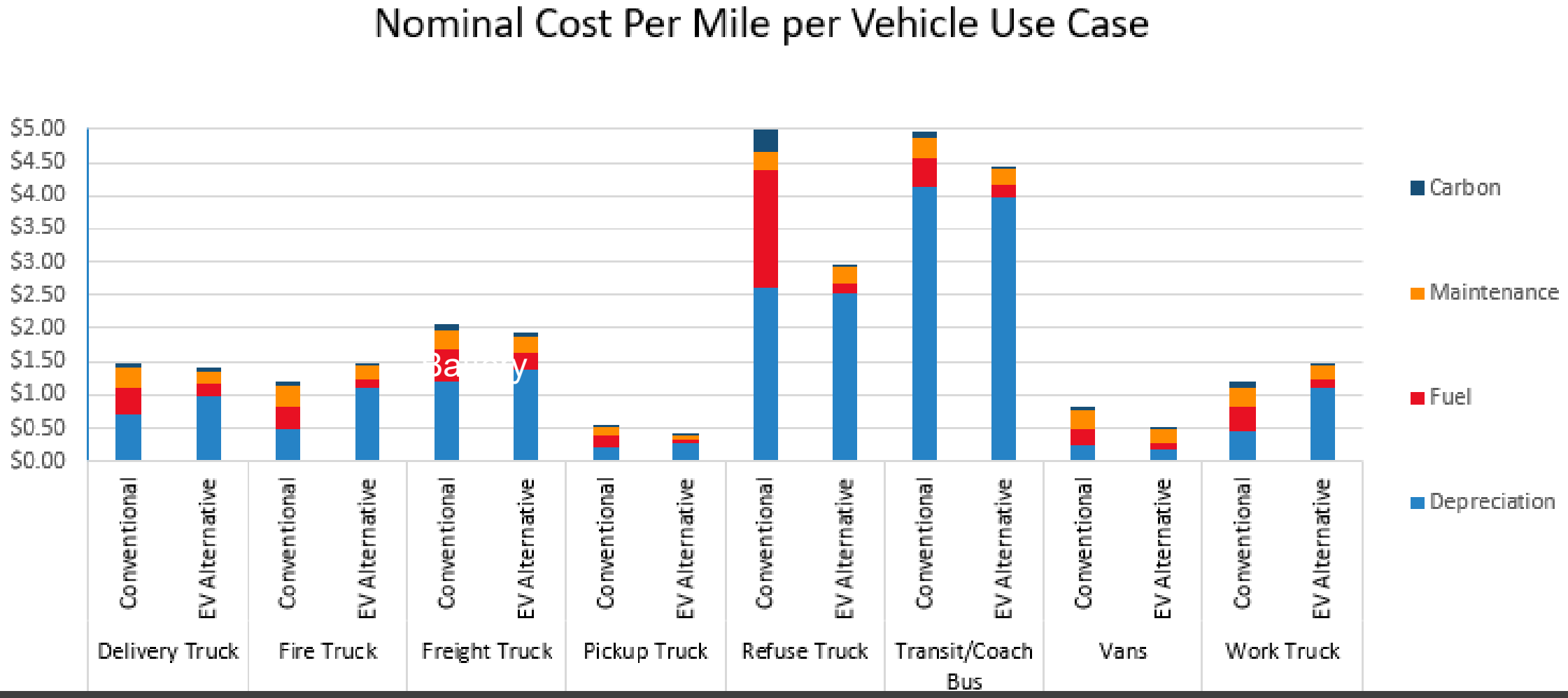




Year	Conventional NPV	Conventional CPM	EV NPV	EV CPM	Avg. Percent Savings	Likelihood of Savings from EVs
2022	$72,916.05	$1.11	$169,987.57	$2.02	-133.13%	Very Unlikely
2025	$74,872.66	$1.14	$149,604.63	$1.78	-99.81%	Very Unlikely
2030	$78,398.40	$1.19	$129,624.60	$1.54	-65.34%	Very Unlikely

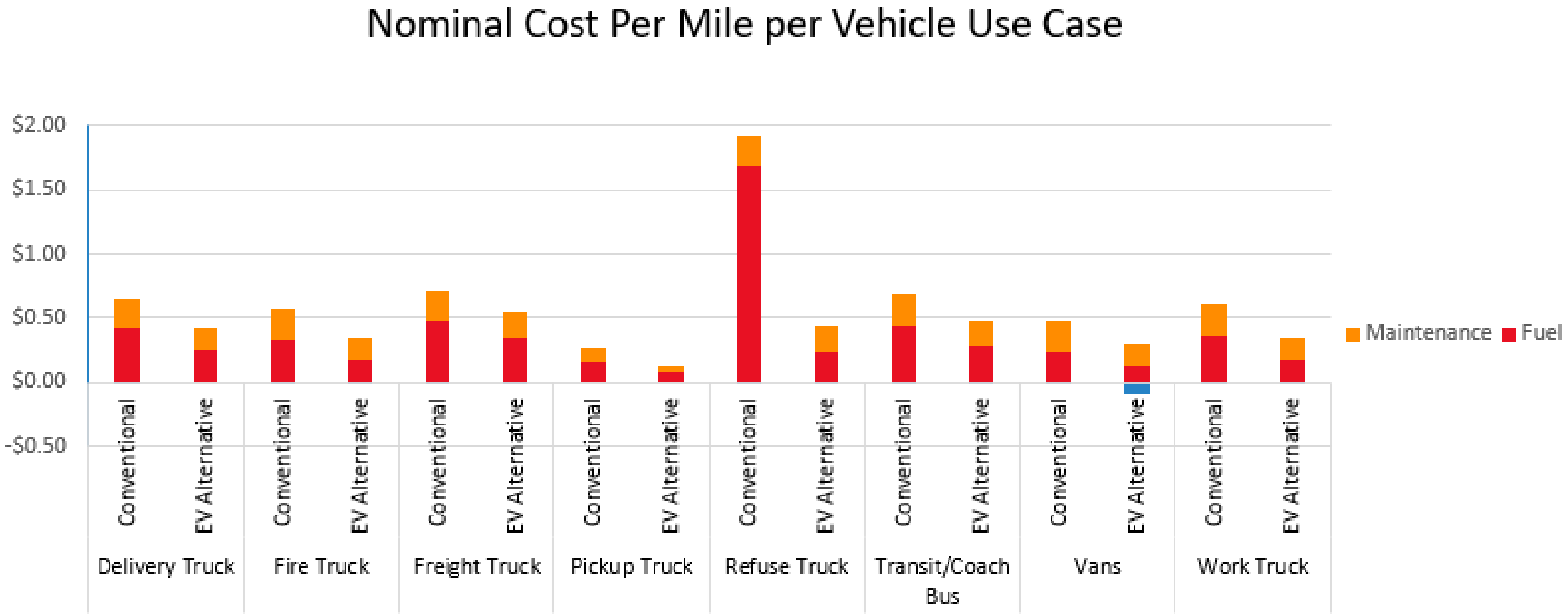
Medium Duty EV Forecast

Total Cost of Ownership



EVs near cost parody but batteries must last

Operating Costs



EVs 30% cheaper than ICE vehicles

CHARGING INFRASTRUCTURE

- Level 1
- Level 2 – 11 kW to 19 kW
- Level 3 – 50 kW to 350+

EV Charger Installation Lessons Learned

- No Two Sites or Installations are The Same and Costs Vary
- Establish Charger Locations During Site Visits
- EV Charger Locations Near Electrical Rooms Cost Less
- The First EV Charging Parking Space must be ADA
- Use Parking Restrictions for EV Charging Parking Spaces
- Design Engineer Obtains Plan Approval
- Only Bid Approved Plans

Invest in Charging Infrastructure

Align EV Plans with Charging Plans

- [x] Determine Charging Needs
- [x] Daily Range Demands
- [x] Dwell Time and Schedule Requirements
- [x] Charging Rate
- [x] State of Charge
- [x] EV Demand Per Site
- [x] Estimate Charger Needs

Planning Charging Needs

- [x] Determine Sites For Charging
- [x] Evaluate Electrical Capacity, Load, & Expansion Possibilities
- [x] Contrast Electrical Capacity to EV Charging Demands
- [x] Create Energy Demand Expectations for Sites
- [x] Determine Site Options and Obstacles
- [x] Ensure Sites are Well Suited for Charging
- [x] Allow Room for Expansion

EV Site Selection Considerations

- ☑ Realistically Determine Number of EVs and Chargers
- ☑ Convenient, Accommodating, Low Traffic Area
- ☑ Cord Management
- ☑ Curbs, Wheel Stops, Setbacks, and ADA requirements
- ☑ Vandalism
- ☑ Signs

EV Charger Installation Lessons Learned

- Work with Utilities Early and Often
- Site visits attended by
  - Project Mangers
  - Facility Managers
  - Electric Engineer
  - Maintenance Staff
- Electrical engineers attend preconstruction meetings
- Conduct rough-inspection and final Inspection
- Gather as much information as possible
  - Electrical Usage, Panel Schedules, & Detailed Electrical Plans

EV Charger Lessons Learned

- Networked chargers provide
  a. Analytical data gathering
  b. Station monitoring
  c. Fleet access
  d. Restricted access
  e. Station reservations
  f. Fault monitoring

- Simple, Low-Cost Chargers are Available

EV Charger Lessons Learned

- Sub-meter building and charger use
- Software can help level loads and avoid demand charges
- Make physical space for larger transformers
- Dense Urban Areas will be difficult to serve once built
- Challenge to status-quo and pilot new technology
- Future proof where possible

EV Charger Challenges

- Vandalism
- Cord Theft
- Non-Working Screens
- Payment System Failures
- Network Failures
- Broken Connectors

EV Success Requires

SEAP
STRATEGIC ENERGY ACTION PLAN
CITY of CHARLOTTE

- Leadership
- Commitment
- Plans and Policies
- Roles and Responsibilities
- Understanding Needs
- Investments
- Champions like You

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CITY OF CHARLOTTE

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Roadmap to Electrification

City of Atlanta
Director Robert L Horton

Office of
Asset Accountability
Management

February 22, 2023

DIRECTOR

Robert L. Horton

Office of
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Email: RLHorton@atlantaga.gov
PH: 404.354.3406

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CITY OF ATLANTA DEPARTMENT OF watershed management
@ATLWatershed www.atlantawatershed.org

CAR DWM SHARE

Department
of
Watershed Management
FLEET

DEPARTMENT OF WATERSHED'S FLEET

On-Road

Light Duty (Top 5 Models)

1. Ford F150s – 292
2. Ford Explorers – 99
3. Ford Escapes – 85
4. Ford Focus – 42
5. Chevrolet C1500s – 41

Heavy Duty (Top Five Vehicle Types)

1. Tandem Dump – 43
2. 5 Yard Dump – 32
3. Sewer Combo – 24
4. Utility Truck – 17
5. Crane Trucks – 15

Medium Duty (Top 5 Models)

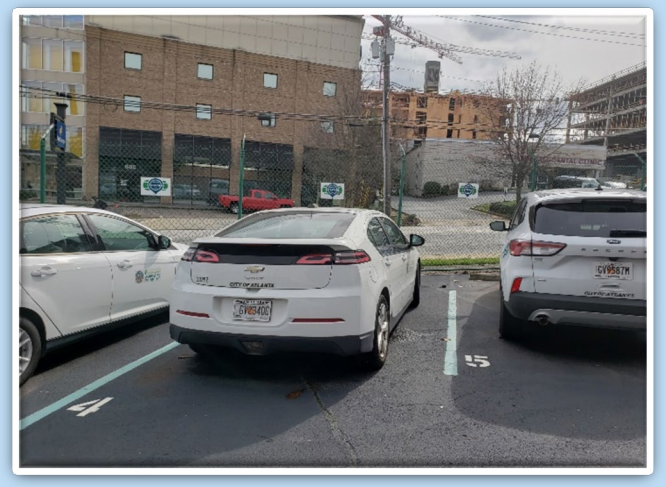
1. Ford F450 – 32
2. Ford F350 – 16
3. Chevrolet C3500s – 11
4. Ford F550 - 6

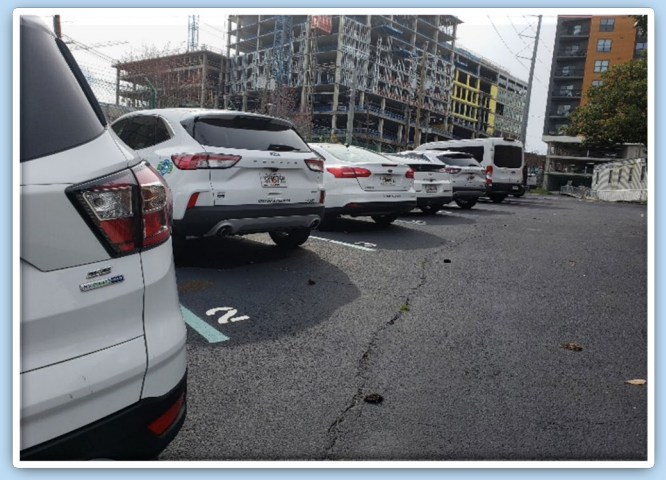
Off-Road

1. Trailer – 87
2. Rubber Tire Loader – 46
3. Z-Turn Mowers – 37
4. Gators – 33
5. Air Compressor – 30

The total number of vehicles and equipment in DWM – 1435

DWM ELECTRIC VEHICLES & EQUIPMENT





- CNG Ford F150 Trucks – 7
- Electric Nissan Leaf's – 9
- Chevy Volts – 5
- Ford F150 Lightening (Two on Order)

DWM CARSHARE PROGRAM

DWM CARSHARE PROGRAM

Total Vehicles - 45

Pickup - 1/2 Ton: 6 - 17.02%
Sedan: 11 - 23.4%
Sedan - Hybrid: 3 - 6.3%
SUV - Medium: 0 - 0%
SUV - Small: 10 - 21.2%
Van - 15 Passenger: 4 - 8.5%
Van - Cargo: 1 - 2.1%
Van - Mini: 1 - 2.1%
Electric Vehicle: 6 - 12.7%
Compact Pickup: 3 - 6.8%

Total Trips in January - 48

Vehicles Per Site
14th St. - 35
72 Marietta St. - 10

Total Users Registered
265

Telematics

SAMSARA

VEHICLE IOT GATEWAY

Real-time GPS tracking
Built-in 4G LTE Wi-Fi hotspot
Rich vehicle diagnostics & configurable alerts: fault codes, fuel levels, idling, and more
Routing & dispatch tools
Two-way driver messaging
Analytics for utilization, route performance, fuel, and more
Open APIs connect to third-party systems for GIS, routing, TMS, asset management, and more

SAMSARA DRIVER APP

Streamline driver workflows
to increase fleet efficiency

- Driver Safety Scores
- Two-Way Messaging
- Routes & Navigation
- Electronic Driver Vehicle
- Inspection Reports
- Reports
- No cellular plan required; high-speed WiFi hotspots are included with Samsara Vehicle Gateways

City of Atlanta

Electrification and Sustainability Goals

City of Atlanta

Total Fleet Inventory

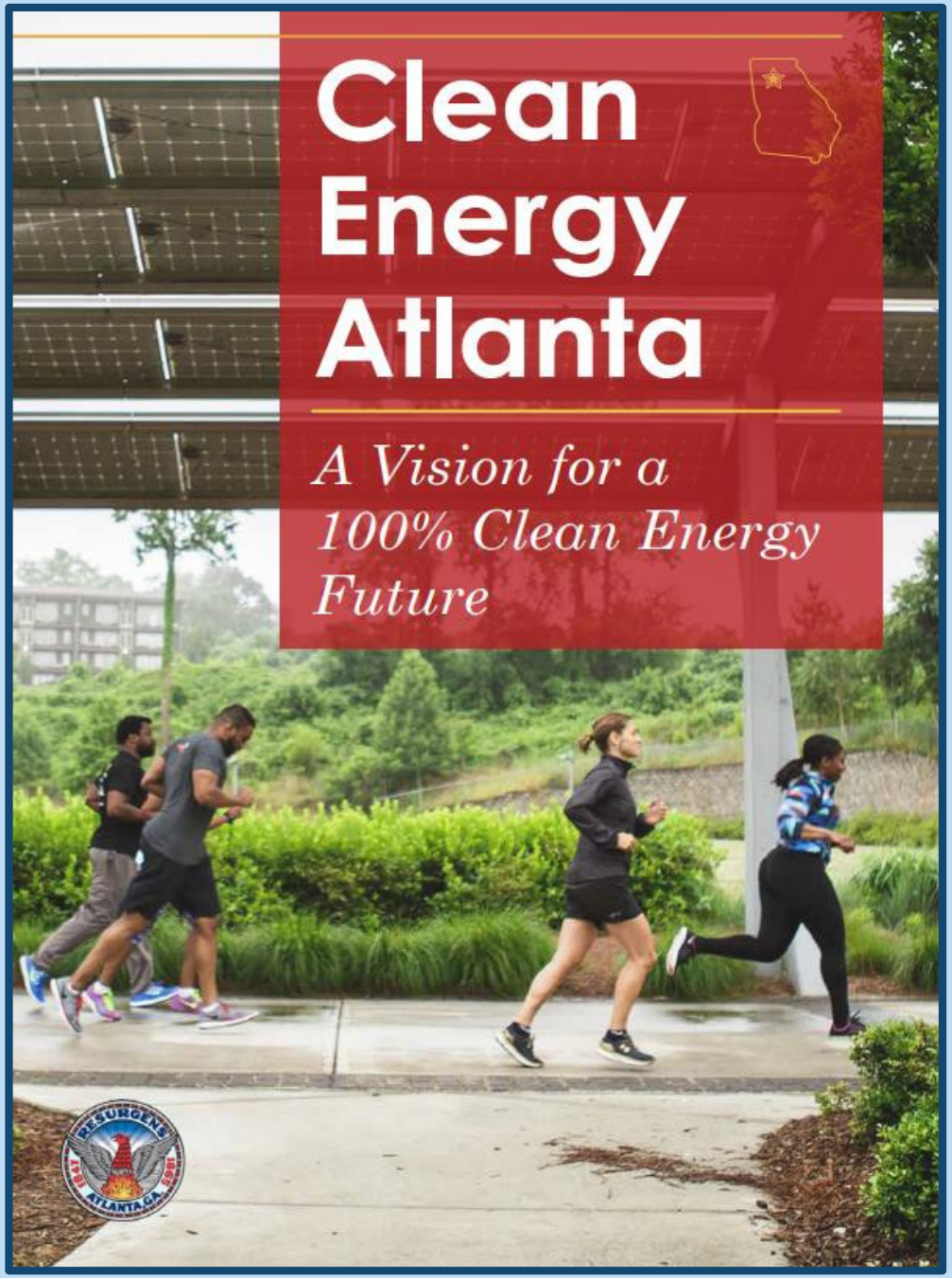
Fuel Type	Light Duty	Medium Duty	Heavy Duty	Total Vehicles	
Propane	0	0	0	0	
CNG	5	75	30	110	
Electric	34	0	0	34	
Hybrid (Traditional)	42	0	0	42	
Hybrid (Plug-in)	33	0	0	33	
Gasoline	2,460	20	0	2,480	
Diesel	380	100	552	1,032	
	2,954	**195**	**582**	**3,731**	**Total # of Vehicles**

Clean Energy Advisory Board

Overview of Interim Goals as adopted by City of Atlanta Council

Overview of Interim Goals

1. 10% Clean Energy by 2020
2. 30% Clean Energy by 2025
3. 50% Clean Energy by 2030
4. 100% Clean Energy by 2035



Clean Energy Plan Recommendation

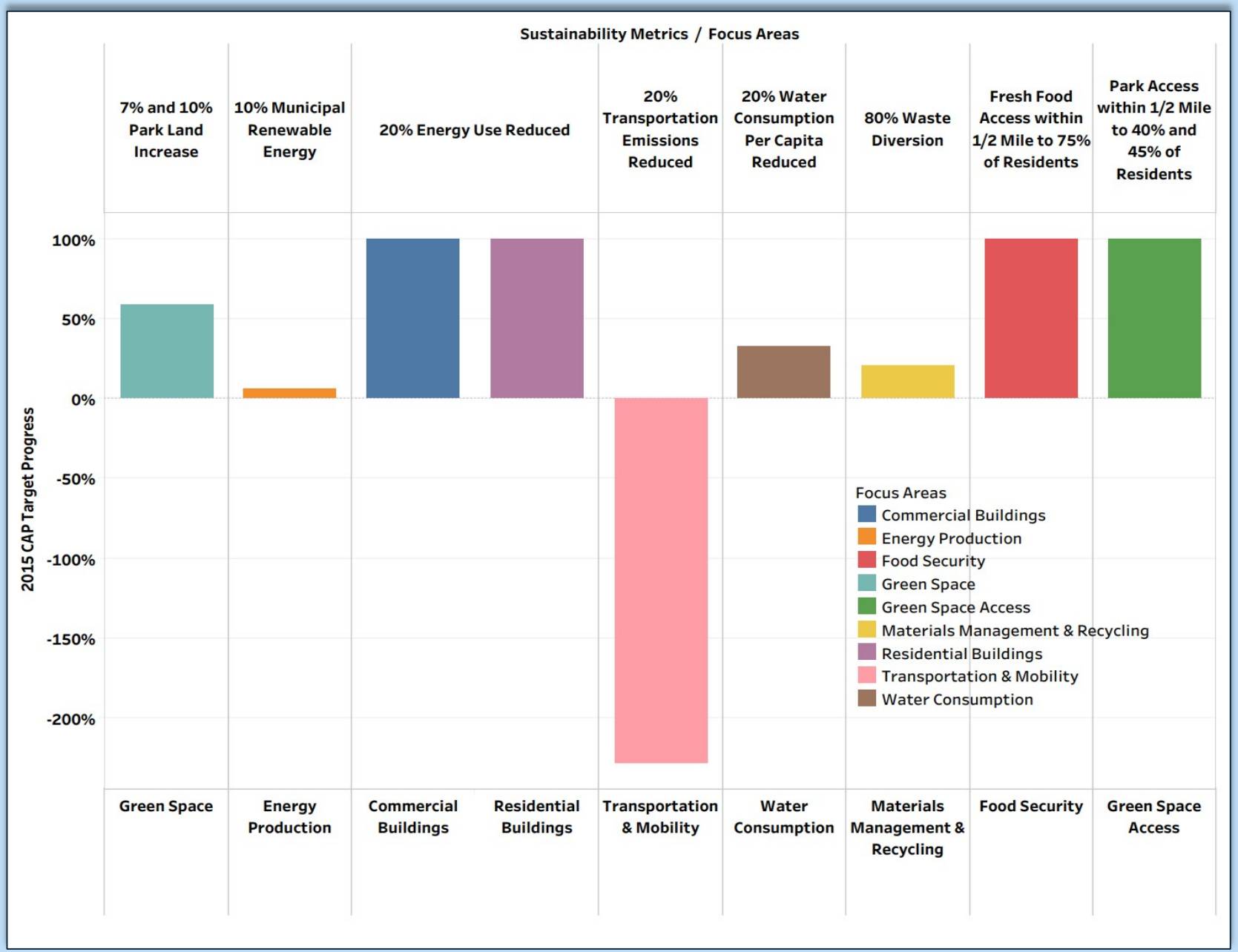
Equity, Economics, and Cost Effecitveness Key

The following pages highlight energy recommendations across seven categories which can be made at both the community and municipal level

Already In Place = **(Y)**

Score of 4 = ●

Policy Score	Overall Equity	Economic Development	Cost Effectiveness
1	*Unfair costs/benefits; may exacerbate inequities*	*Little/No development*	*High cost/slow return*
2	*Fair costs/benefits; unlikely to move the status quo*	*Some development*	*Average cost and return*
3	*Good costs/benefits; could improve the status quo*	*Strong development*	*Better than average cost and return*
4	*Very good costs/benefits; could greatly improve the status quo*	*Very strong development*	*Low Cost/Excellent return*

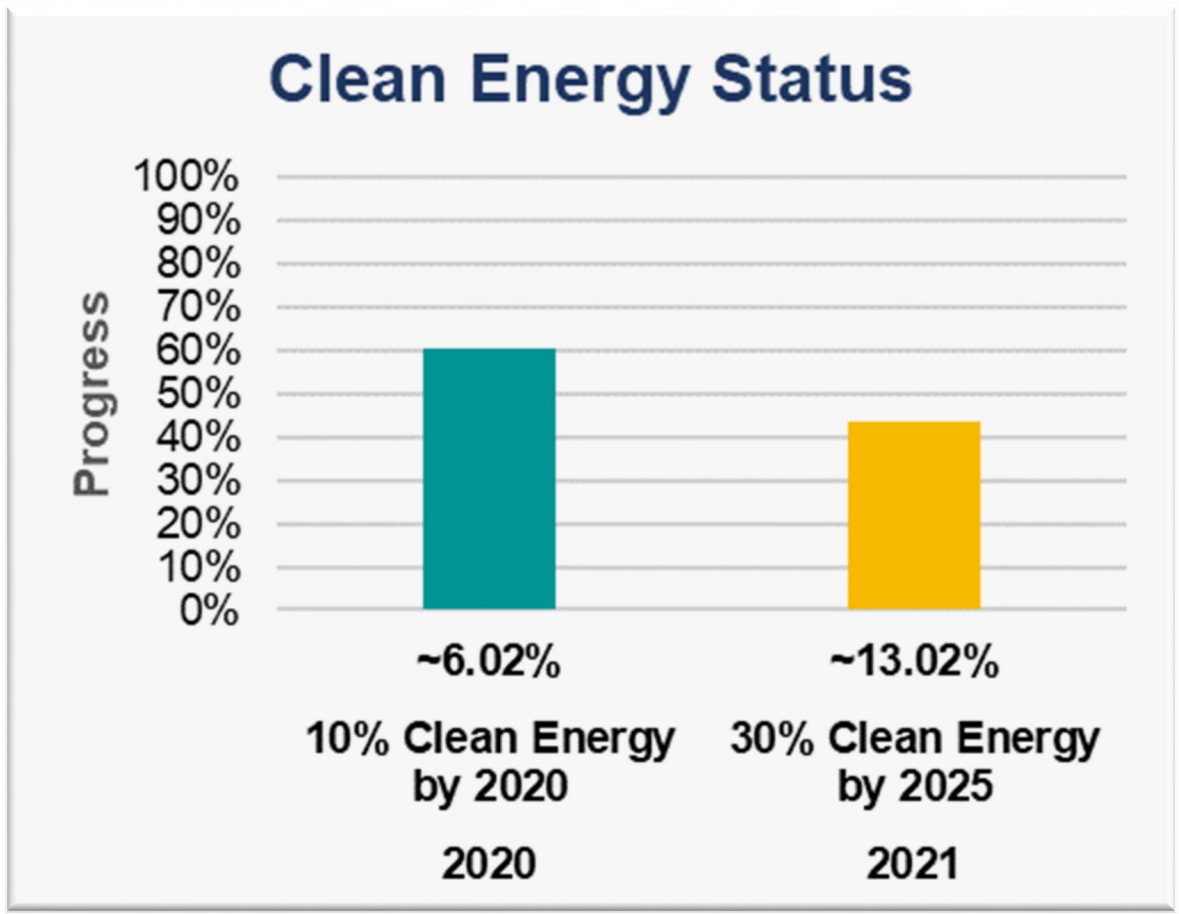


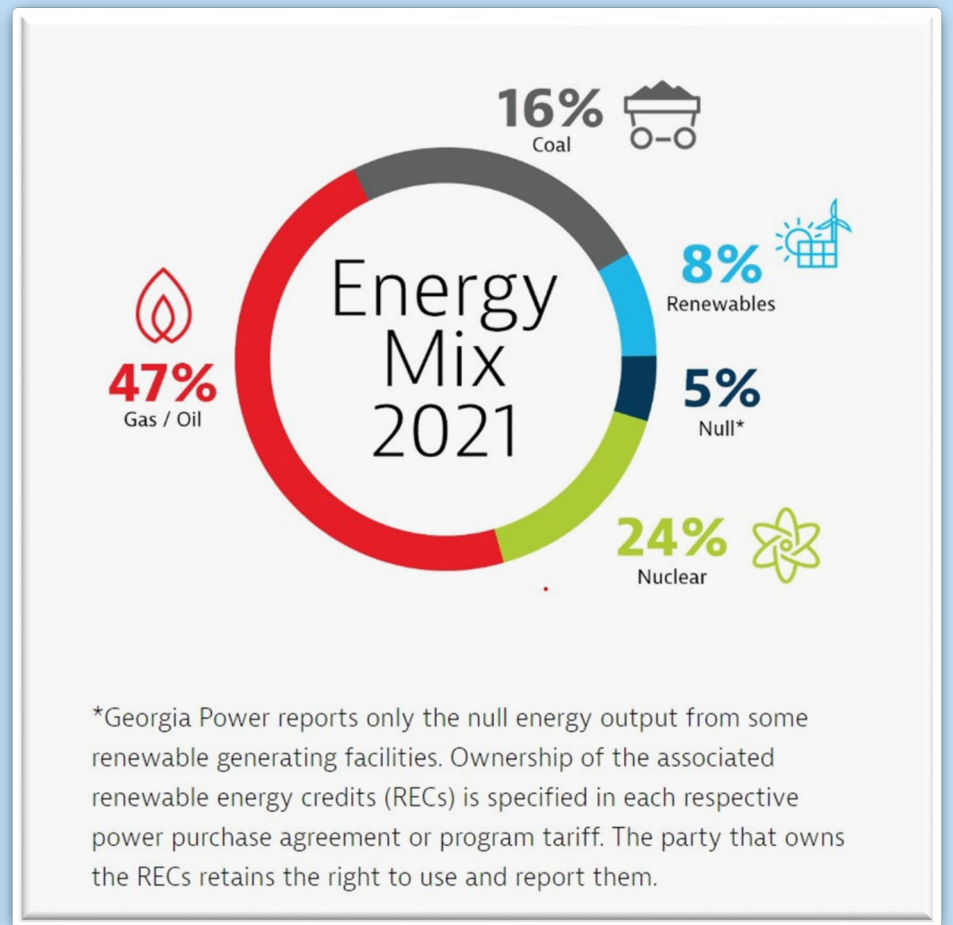
Action Plan Progress

Goals Met in 2020 (2009 Baseline):

Commercial Buildings
Residential Buildings
Food Security
Green Space Access

RENEWABLE ENERGY ON THE GRID TO MEET 100% OF ATLANTA ENERGY NEEDS





CLEAN ENERGY ATLANTA OVERVIEW

Additional Actions and Recognitions outside of recommendations from Clean Energy AtlantaGeorgia Power Rate Case and IRP Intervention with four

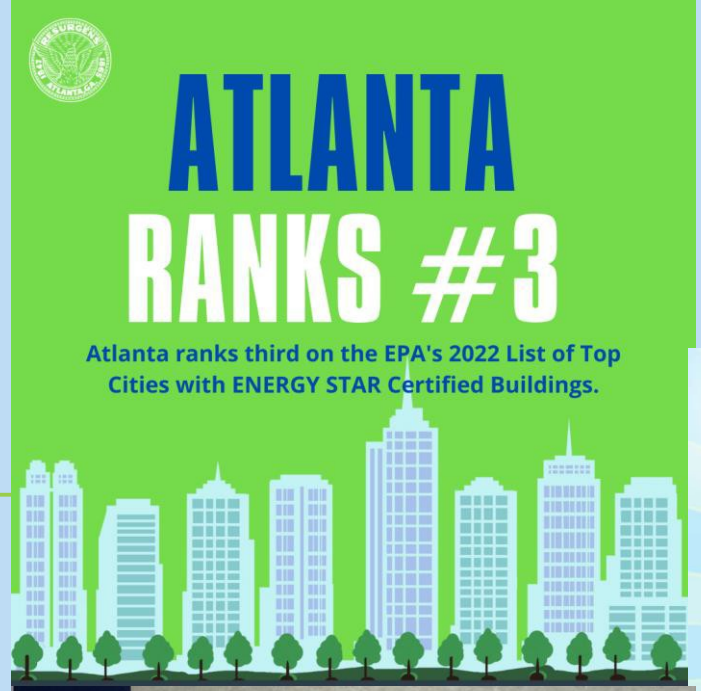
Additional Actions:

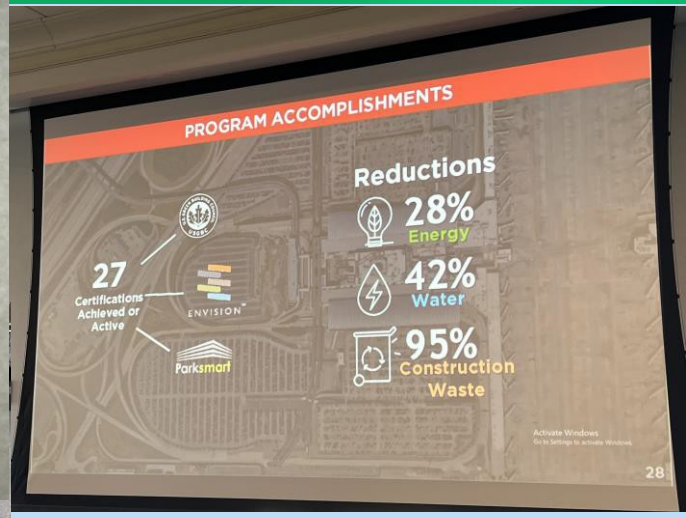
other Georgia local governments that share the same 100% clean energy goal.

2. Atlanta Energy Map - CBEEO Dashboard Pilot and Greenlink Group CBEEO Results.
    1. Available now at: AtlantaBuildingBenchmarking.com
3. WeatheRISE ATL
4. Lake Charlotte Carbon Credit Program
5. Better Buildings Challenge 2.0
6. Tree Protection Ordinance
7. Green Bank Opportunities
8. Green Bonds

Recognitions:

1. Atlanta ranked #3 on the EPA's Energy Star Cities Scorecard.
2. Atlanta ranked #33 for North America Fleet Management Association's (NAFA) Green Fleets for the most sustainable commercial and local government fleets in North America.





CDP
DISCLOSURE INSIGHT ACTION
CITIES A LIST 2022
Atlanta

Atlanta: CDP Cities A List for 2022

For the first time, the City of Atlanta made the A List and was recognized as a Climate Action Leader

- **49 cities and counties in USA**
- **12% received an A Score**

ANDRE DICKENS

MAYOR OF ATLANTA

"With leadership from the Mayor's Office of Sustainability and Resilience, the City is focused on tracking our progress and establishing a standard of transparency as we advance climate action goals–like our commitment to reach 100% Clean Energy for 100% of Atlantans by 2035. When combined with our community partnerships, we can drive the urgent action needed to address the increasing impacts of climate change and build a more resilient and equitable future."

CHERRY STREET ENERGY

FIRST, SOME BACKGROUND:

City of Atlanta: Cherry Street Energy became Atlanta's renewable energy provider in 2017 through FC-9696, a Solar Energy Procurement Agreement (SEPA) that allows the city to install solar at no upfront cost.

Atlanta Watershed: The Department of Watershed Management was added to FC-9696 as a user in 2019. Legislation to add Watershed's major facilities* to FC-9696 was executed in 2021.

Cherry Street Energy provides solar installations to DWM at no cost. Once solar is installed, DWM buys the energy that is produced on-site by solar.

- The cost of the solar energy is competitive with utility energy costs, and is projected to be increasingly lower as time passes and utility rates continue to rise.

- Because of the solar energy cost, DWM has the opportunity to save on their total electricity costs by installing solar capacity. As more capacity is installed, more savings are realized.

- Let's take a look at the potential savings…

Savings Overview Reviewed and approved by
Georgia Power Pre-solar Savings –
Based on CSE rate changes

Actual $188k savings this past year
Projected 20 Year Savings (without solar) $5.4M
Projected Savings when solar capacity is met
Year 1 Savings (with solar) $228k
20 Year Savings (with solar) $6.7M

PLAN OF ACTION

Recommended Solar Panel Installations

Site Name	Target Capacity (DC)	Savings Increase (%)	Savings Increase ($)
Chattahoochee	167 kW	1.1	$15,310
South River	1,845 kW	9.7	$171,895
Utoy Creek	1,064 kW	8.1	$98,976
Hemphill	3,001 kW	16.8	$313,861

$1.3 M
Added 20 Year Savings with Solar

$6.7 M
20 Year Savings with Solar

Savings Overview

Reviewed and approved by Georgia Power

Pre-solar Savings – Based on CSE rate changes

$188k

Actual savings this past year

$5.4M

Projected 20 Year Savings (without solar)

Projected Savings when solar capacity is met

$228k

Year 1 Savings (with solar)

$6.7M

20 Year Savings (with solar)

UTOY CREEK FACILITY

COMPLETED INSTALLATION

Strategies for Electrification & Sustainability:

- **Clean Energy Funding**: Identify partnerships and define funding strategy to accelerate pathway to 100% Clean Energy including Green Banks, American Rescue Plan Act, the Infrastructure Investment and Jobs Act, and historic climate legislation, the Inflation Reduction Act

- **Community and Partner Engagement:** Develop community-driven engagement, communication and projects strategy including Youth Climate Action, Internal & External Stakeholder Engagement and Education, Workforce Development, and roadmap to Reduce Energy Burden in underserved communities

- **Decarbonize Atlanta:** Reduce building greenhouse gas emissions, implement building performance standards, retrofit buildings and homes to improve energy efficiency adoption and workforce development

- **Transportation Infrastructure:** Define roadmap and timeline for EV Infrastructure and Citywide Charging Stations, “Complete Cities”, Transit Oriented Development, Public Transportation Improvements and Incentives

Strategies for Electrification & Sustainability:

- **New Interdepartmental EV Fleet/Infrastructure Committee:** New committee consisting of representatives from **DWM, DPW** and the **Atlanta Airport**. Committee to discuss and cooperate with collective purchasing opportunities for EV vehicles and infrastructure, grants and federal funding available for municipalities, and location priorities for new EV charging stations.

- **Electric Vehicle Charging Stations:** Secure a City-wide contract to purchase new EV charging stations as well as maintenance and servicing of existing stations.

- **New Electric Vehicle Purchases:** Set goals within each Department to reach the total 20% goal of electric vehicle purchases each year.

- **Electric Vehicle Charging Gaps:** locate and close any charging gaps for the COA Fleet to meet the goal of the total Fleet being 20% electric.

NC STATE UNIVERSITY

https://www.sustainablefleetexpo.com/

NC CLEAN ENERGY TECHNOLOGY CENTER

NAFA Fleet Management Association

VIATEC

Sourcewell

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION