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Strategic Energy Action Plan Update
3.28.22

SEAP

STRATEGIC ENERGY ACTION PLAN

CITY of CHARLOTTE

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CITY of CHARLOTTE

GOALS

- Strive to source 100% of municipal energy use in buildings and fleet from zero carbon sources by **2030**

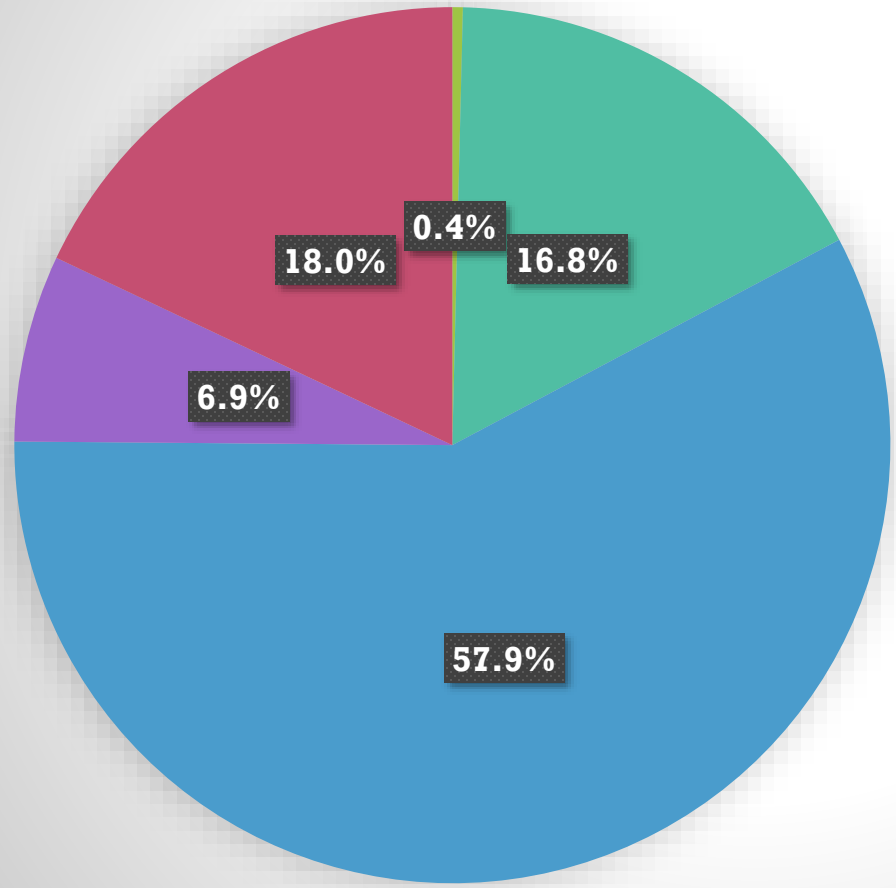
- Strive to become a low carbon city by **2050**, emitting less than 2 tons of carbon dioxide equivalent per person

FOCUS AREAS

1. Buildings
2. Transportation
3. Energy Generation
4. Workforce Development

Charlotte has made significant progress towards powering our buildings with zero-carbon energy by 2030 by following strategies outlined in the SEAP.

2030 Zero-Carbon Buildings - 2021 Progress Snapshot



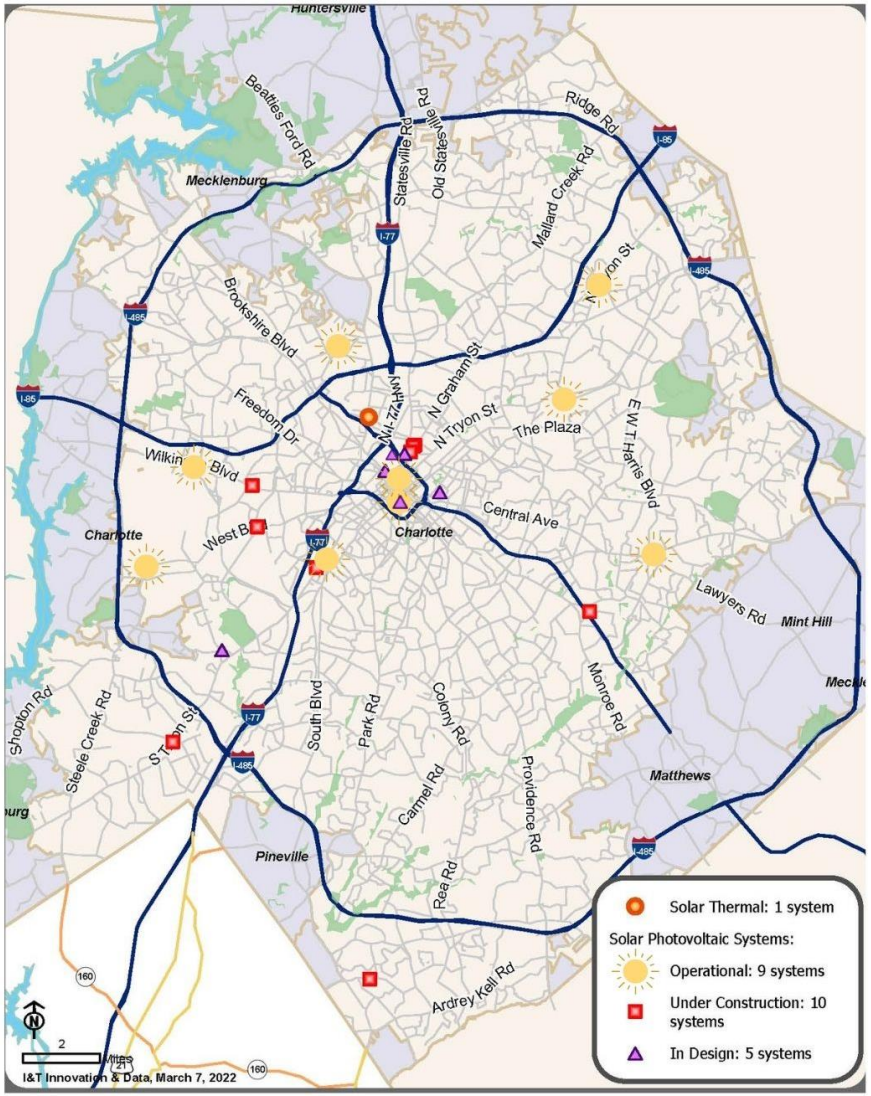
- **Future Budgeted On-Site Solar**
  Planned solar based on FY21-22 budget, not yet operational
- **Green Source Advantage**
  Charlotte's large scale offsite solar project
- **Existing Zero-Carbon Grid Mix**
  Duke Energy's grid that is comprised of solar, hydro, and nuclear
- **Future Additional Grid Decarbonization by 2030**
- **Zero-Carbon Gap**
  The gap Charlotte will work to close through energy efficiency measures, solar, renewable energy purchases, and engagement with Duke Energy and Utilities Commission

The city consumed approximately 443,007 MWh of energy in the buildings sector in 2021.

ENERGY GENERATION: CITY OF CHARLOTTE MUNICIPAL SOLAR ENERGY SYSTEMS

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

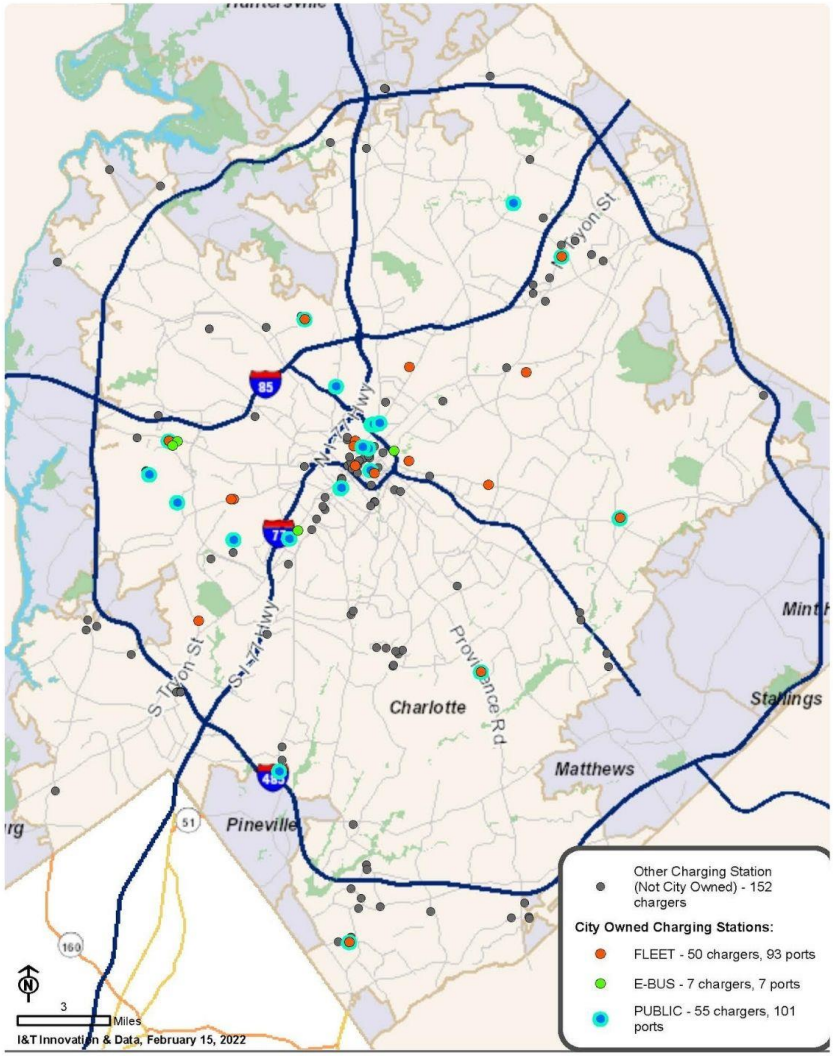
- FY21 budget is funding municipal solar installations at **10** facilities across various departments.
- FY22 budget is funding the design of municipal solar at **5** more city locations
- Once constructed, it will bring total count to **25**



TRANSPORTATION: CITYWIDE ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

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

- The City currently has a total of **105** total electric vehicle charging stations with **194** ports
- **50** stations are available to the public.
- In 2021, city-owned public EV charging stations charged **2,039** unique drivers' vehicles, meaning 2,039 different people charged their car at least one time at a city-owned station.



FLEET STATISTICS

- The Sustainable and Resilient Fleet Policy is focused on purchasing the lowest-emitting vehicle depending on usage and technology.
- As a result of that system, below are just a few fleet stats from FY 2021:

  - **NUMBER OF ZERO EMISSION (ELECTRIC) VEHICLES: 43**
  - **NUMBER OF ALTERNATIVE FUEL VEHICLES: 81**
  - **CARBON AVOIDED: 2,187 METRIC TONS**

- With FY 2022 investments, including five Aviation BEBs and an 18 BEB pilot at CATS, the city will have a total of 88 EVs.

TRANSPORTATION: MOBILITY CONTINUED

FACILITATE THE RAPID UPTAKE OF SUSTAINABLE MODES OF TRANSPORTATION AND INCREASE ACCESS TO ZERO-CARBON MOBILITY OPTIONS

- Investments in a walkable, bike-able, and connected Charlotte reduces carbon emissions by reducing the need for single-occupancy vehicle trips.

- Charlotte has nearly 190 miles of bikeways and continues finding ways for cycling to serve as a transportation option for our growing population.

All Ages and Abilities Cycling Network

As of the end of 2021:

- **14.5 MILES**
  - ✓ 5 miles of Separated Bike Lanes
  - ✓ 9.5 miles of shared use path

Projected in the next 5 years:

- **65 MILES TOTAL (INCREASE OF 50.5 MILES)**
  - ✓ 17 miles of Separated Bike Lanes (increase of 12 miles)
  - ✓ 48 miles of shared use path (increase of 38.5 miles)

*Charlotte Department of Transportation network on streets, not including greenway trails.

EMBEDDING EQUITY

- **PoleVolt Pilot:** The City of Charlotte, UNC Charlotte, Duke Energy, and Centralina Regional Council partnered to pilot electric vehicle (EV) utility pole-mounted chargers.
- This project realizes a new avenue for EV charging that would leverage existing assets, using first of its kind technology in North Carolina – and supports equitable access to charging infrastructure.

- **RENEW:** In September 2020, The Renewable Energy and Energy Efficiency Workforce (RENEW) Training Program launched in alignment with CARES Community Relief Strategy, and the Workforce Development pillar of the SEAP.
- RENEW provides paid training through Urban League of Central Carolinas and Goodwill Industries of the Southern Piedmont in the areas of HVAC, Electrical Trades, and sustainable technologies.
- Over the course of 16 months, RENEW graduated 86 participants from the program. 73% of graduates are working full-time.

Financing Firsts

FY 2021 and FY 2022 marked the first time the SEAP was included in the Council-approved Capital Investment Plan (CIP) for sustainable building infrastructure. Long-term financing for the SEAP was included in the 2021B Public Facilities Certificate of Participation (COP).

In addition, 2021 marked the first year the city included information about SEAP in our bond offering documents. Details were included in both a Public Facilities COP and a General Obligation debt issuance.

2021 GRANTS, AWARDS, AND RANKINGS

RESEARCH TRIANGLE CLEANTECH CLUSTER™
» Transformation Through Collaboration

EQUITY IN CLEANTECH AWARD

Charlotte Area Transit System (CATS) Electric Bus Program

The CATS electric bus pilot program is focused on bringing cleaner air to residents of the Charlotte-Mecklenburg region with battery electric buses. This electric bus partnership will prioritize the city's "Corridors of Opportunity" with selection of bus routes. This pilot project supports both the city's ambitious climate goals and will provide public health benefits throughout the region. CATS serves as a model for other municipalities and transit agencies around the country.

EPA United States Environmental Protection Agency

CHARLOTTE RANKS NO. 19 ON EPA'S 2021 LIST OF TOP CITIES WITH ENERGY STAR-CERTIFIED BUILDINGS

The U.S. Environmental Protection Agency (EPA) has ranked Charlotte as 19th on its 2021 list of U.S. metropolitan areas with the most ENERGY STAR-certified buildings. Cities were ranked according to how many buildings in their area achieved ENERGY STAR certification in 2020. The ranking confirms the Charlotte community's commitment to following best practices, technical guidance and training, and becoming a leader in sustainability.

ACEEE American Council for an Energy-Efficient Economy

2021 CITY SCORECARD: MOST IMPROVED CITY

The 2021 City Clean Energy Scorecard

This report scores 100 U.S. cities on their efforts to advance their clean energy goals by improving energy efficiency and moving toward a cleaner electric grid and fuels. Madison, Wisconsin; Charlotte, North Carolina; and Honolulu, Hawai'i, are this year's most-improved cities. In 2020, Charlotte was ranked 65 out of 100 cities, and in 2021, Charlotte jumped to 42 out of 100.

U.S. GREEN BUILDING COUNCIL USGBC

LEED FOR CITIES AND COMMUNITIES: GOLD

LEED for Cities and Communities certification recognizes cities that create responsible, sustainable, and specific plans for natural systems, energy, water, waste, transportation, and many other factors that contribute to an improved quality of life. Charlotte achieved LEED for Cities Gold certification for implementing practical and measurable strategies and solutions aimed at improving sustainability and the standard of living for residents.

U.S. DEPARTMENT OF ENERGY

AFFORDABLE MOBILITY PLATFORM (AMP)

Forth, a non-profit whose mission is to electrify transportation by bringing people together to create solutions that reduce pollution and barriers to access, was awarded a $5 million grant from the US Department of Energy, and the City of Charlotte was selected as a partner. This grant will fund the AMP Project to reduce the barriers to electric vehicle adoption facing underserved communities, particularly residents of affordable housing. It will: Increase access to clean, affordable transportation to residents of affordable housing developments; demonstrate a replicable model for affordable housing agencies to offer EV carsharing using fleet vehicles as a transportation service to their residents; and demonstrate how dedicated carsharing chargers can also serve community members, effectively improving the regional charging network.

CITY of CHARLOTTE

2020-2021 ENERGY USAGE CHARLOTTE

Energy Performance Benchmarking Report for Municipal Buildings

What Is Benchmarking?

Building energy performance benchmarking (benchmarking) is a method to determine whether a building is using more or less energy than comparable buildings with similar use characteristics. This practice also allows organizations to check their own yearly energy reduction progress.

Why Are We Benchmarking?

Benchmarking can offer several benefits for building owners, operators, occupants and surrounding communities. Benchmarking data allows building owners and operators to assess the relative energy performance of their buildings and prioritize investment opportunities to cost-effectively reduce energy consumption. A recent study by the Environmental Protection Agency (EPA) found that buildings benchmarked on a consistent basis achieved an average annual energy savings of 2.4%. In addition, studies have established strong correlations between reduced energy consumption, associated greenhouse gas reductions, and improved public health. Finally, reducing energy usage is a strategy for reaching low-carbon, SEAP goals.

WE HAVE A ROLE TO PLAY

Climate Challenge Cities' Total Emissions Reductions Projected to Surpass Paris Target*

Paris Agreement 2025 Reductions Target
26-28% reduction in carbon emissions from 2005 levels

26-28%

Climate Challenge Cities Projected 2025 Reductions 32% reduction in carbon emissions from 2005 levels

32%

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THANK YOU