

Strategic Energy Action Plan (SEAP) Updates

Background

Sustainable and Resilient Charlotte by 2050 Resolution: In June 2018, the Sustainable and Resilient Charlotte by 2050 Resolution was unanimously passed by City Council. This resolution set aggressive and aspirational municipal and community-wide greenhouse gas emissions reduction goals for the City of Charlotte. Specifically, it **strives to have city fleet and facilities fueled by 100 percent zero-carbon sources by 2030**. It also **sets a community-wide goal for Charlotte to become a low carbon city by 2050** by reducing greenhouse gas emissions to below 2 tons of CO₂ equivalent per person annually.

Strategic Energy Action Plan: In December of 2018, City Council unanimously adopted the Strategic Energy Action Plan (SEAP). This resulted in a comprehensive framework of internal and external actions, focused on **transportation, buildings, energy generation, and equitable workforce development**.

Bloomberg Philanthropies American Cities Climate Challenge: The American Cities Climate Challenge (ACCC) aims to accelerate and deepen U.S. cities' efforts to create the greatest climate impact and showcase the benefits – good jobs, cleaner air, and cost savings – that climate solutions bring. Charlotte was selected as an ACCC city in 2018 and continues to receive support through Climate Advisors and technical resources.

Year Three of SEAP Implementation: Below is an outline of progress broken out by SEAP focus area category for calendar year 2021, including FY2022 budget investments made by City Council (Attachment 1).

The city also conducted an updated community-wide **Greenhouse Gas Emissions Inventory** with 2019 data. See the data and accompanying document (Attachment 2).

Buildings

- In January 2021, City Council adopted the updated **Sustainable Facilities Policy** to align with the Sustainable and Resilient Charlotte by 2050 Resolution and the SEAP. These revisions emphasize:
 - Reducing energy consumption in municipal buildings,
 - Enabling more rooftop solar on municipal buildings,
 - Establishing more electric vehicle charging at municipal parking lots,
 - Formalizing internal and external performance reporting processes to measure progress, and
 - Strengthening the ability to make data-driven decision for future investments.
- Currently, city staff members are implementing this policy through internal education and engagement - and integration into building projects underway.

Transportation

- In July 2021, The city partnered on an application for a US Department of Energy grant that would fund a nationwide project to reduce the barriers to EV adoption facing low to moderate income communities by **placing low-cost car-sharing vehicles in low- and middle-income housing parking areas** with dedicated charging infrastructure.

- This grant opportunity is led by Forth, a nonprofit focused on advancing equitable, electric, smart, and shared transportation.
- If selected, this project would advance multiple city goals, including the Strategic Energy Action Plan's goal to equitably encourage and grow the local adoption of low carbon transportation.
- In August 2021, the city executed a contract with eTransEnergy, to launch an electric bus pilot program to test 18 battery electric buses from two different manufacturers. As part of the agreement, eTransEnergy will install and maintain the charging equipment infrastructure. CATS will own all buses and infrastructure. Through federal, state, and local funding, CATS is investing \$22.8 million in FY2022 for this Battery-Operated Electric transit bus initiative.
- With the installation of FY21-funded electric vehicle charging stations to support the city's electric vehicle fleet, the city now has a total of 104 electric vehicle charging stations, many available to the public.

Equitable Workforce Development

- In September 2020, The **Renewable Energy and Energy Efficiency Workforce (RENEW) Training Program** launched in alignment with CARES Community Relief Strategy, and the Equitable 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 and Electrical Trades for Charlotte residents displaced from employment by COVID-19. This 13-week course teaches basic skills for the industry and provides hands-on experience with the sustainable technologies in this field.
 - The City developed and has grown a **Corporate Advisory Council (CAC)** to support RENEW and provide employment opportunities to graduates. The CAC convenes every 6 weeks with approximately 45 representatives from the HVAC and sustainable technologies industry. Trane Technologies is the lead employer partner of the program.
 - Program performance as of August 2021:
 - 56 training participants have successfully graduated, with 21 more expected to graduate in September 2021.
 - 26 different employers have hired RENEW graduates.
 - Of the participants who graduated and remained engaged with the program, 88% have either retained employment, sought higher education, or obtained a new position in the HVAC industry with a starting average pay of \$17.13.

Energy Generation

- In March 2021, City Council approved a contract in the amount of \$1,602,640 for the **City Facilities Solar Panel Installation** project, as was allocated in the FY2021 budget for Sustainable Infrastructure.
 - This includes the design, engineering, and installation of solar panels, including both roof-mounted and ground-mounted arrays, which collectively represent approximately 874.4 kilowatts direct current of total solar capacity.
 - Once constructed, these solar panel installations will annually generate over one million kilowatt-hours of zero-carbon electricity, equivalent to powering 114 homes with clean, renewable energy.

- The installations will include 9 facilities across various departments: Charlotte Mecklenburg Police Department (CMPD), Charlotte Fire Department (Fire), and Charlotte Department of Transportation (CDOT).
- The projects are anticipated to be complete by fourth quarter 2022.
- With the completion of this work, it will bring the city's total on-site solar installation count to 20.
- In February 2021, The City of Charlotte formally participated in the **North Carolina Utilities Commission Integrated Resource Process** by filing comments that reflect Charlotte's goals around addressing carbon emissions and equity. By taking the action, the city shows its commitment to reaching SEAP goals and the importance of a low carbon and equitable future for North Carolina.

Community Engagement

Understanding that the city cannot accomplish SEAP goals alone, the **SEAP External Content Group** was created in 2019 for partnership, collaboration, and action to achieve ambitious sustainability and resiliency goals. This group is comprised of external stakeholders representing a range of organizations from non-profits to environmental groups to local businesses. The group meets quarterly and has continued to take action in the community to reduce carbon emissions, with the support of city staff.

- **Greening our Faith Communities Summit:** a two-day virtual summit that took place in May 2021 to bring together houses of worship and people of faith to provide inspiration and tools for engaging in climate change work.



- The idea for this summit stemmed from the SEAP External Content Group and the city acted as a partner for the planning and implementation of the summit.
- The summit had 195 registrants, representing 44 different congregations in Charlotte.
- **Framework4Future's SEAP Youth Ambassador Program:** Framework For Future (F4F) is a 501(c)3 non-profit organization for young leaders in Charlotte which formed four years ago. Through the SEAP External Content Group, F4F and UNCC implemented a six-week Youth Ambassador Program

to educate and engage local students in sustainability solutions. This program wrapped up in February 2021 via Zoom (shown below).



Upcoming Items:

- City staff is working to ensure SEAP alignment with the Charlotte Future 2040 Comprehensive Plan and the draft items scheduled for the Unified Development Ordinance.
 - One example is a draft **electric vehicle charging standard** for the development of multi-family stacked dwellings, the residential component of mixed-use developments, hotels, and parking lots and parking structures as a principal use to support residents in the market shift to electric vehicles.
- The city has partnered with UNC Charlotte, Duke Energy, and Centralina Regional Council on a one-year pilot project for charging equipment. This innovative **PoleVolt** project utilizes existing Duke Energy-owned utility poles and curbside parking to provide community charging to residents.
 - If successful, the project would realize a new avenue for EV charging that would be less expensive and require no ground-breaking.
 - This technology is the first of its kind in North Carolina and this pilot would work through challenges and opportunities to create best practices for Charlotte and other communities.
 - The first unit is planned to be installed in 2021.
- As part of the updated Sustainable Facilities Policy, the city is formalizing internal and external performance reporting processes in order to strengthen the ability to make data-driven decision for future sustainable building investments.
 - The city will publish its first **annual benchmarking report** that publicly shares municipal building energy performance. This report will be published in 2021.
- The city is enhancing signage and branding of **public-facing electric vehicle charging stations** to promote the public's uptake of low carbon modes of transportation. These signs showcase the city's commitment to SEAP goals and communicate to the public where to charge electric vehicles for free. These signs are planned to be installed in 2021.

Attachment 1

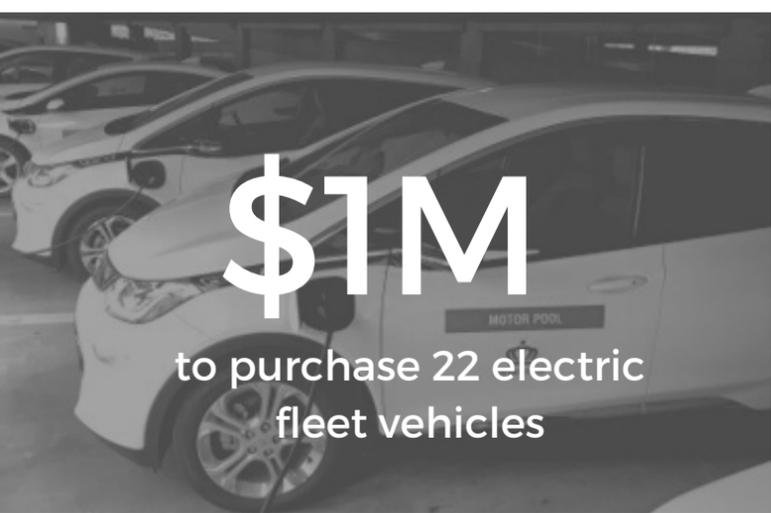
FY2022 SEAP

INVESTMENTS, GRANTS & POLICIES



\$4.75M

to create sustainable building infrastructure



\$1M

to purchase 22 electric fleet vehicles



Continued implementation of revised

Sustainable Facilities Policy



The city continues to work with Bloomberg Philanthropies and other technical assistance partners to implement the American Cities Climate Challenge Grant.



\$50M

planned for the Sidewalk and Pedestrian Program in 2022 Bond funding



\$22.8M

through grant, federal, and local funding to purchase 18 CATS electric buses, build supporting infrastructure, and provide training



\$4.2M

to purchase electric buses for the Airport and build supporting infrastructure



\$8M

planned for the Bicycle Program in 2022 Bond funding



SEAP

STRATEGIC ENERGY ACTION PLAN

 CITY of CHARLOTTE

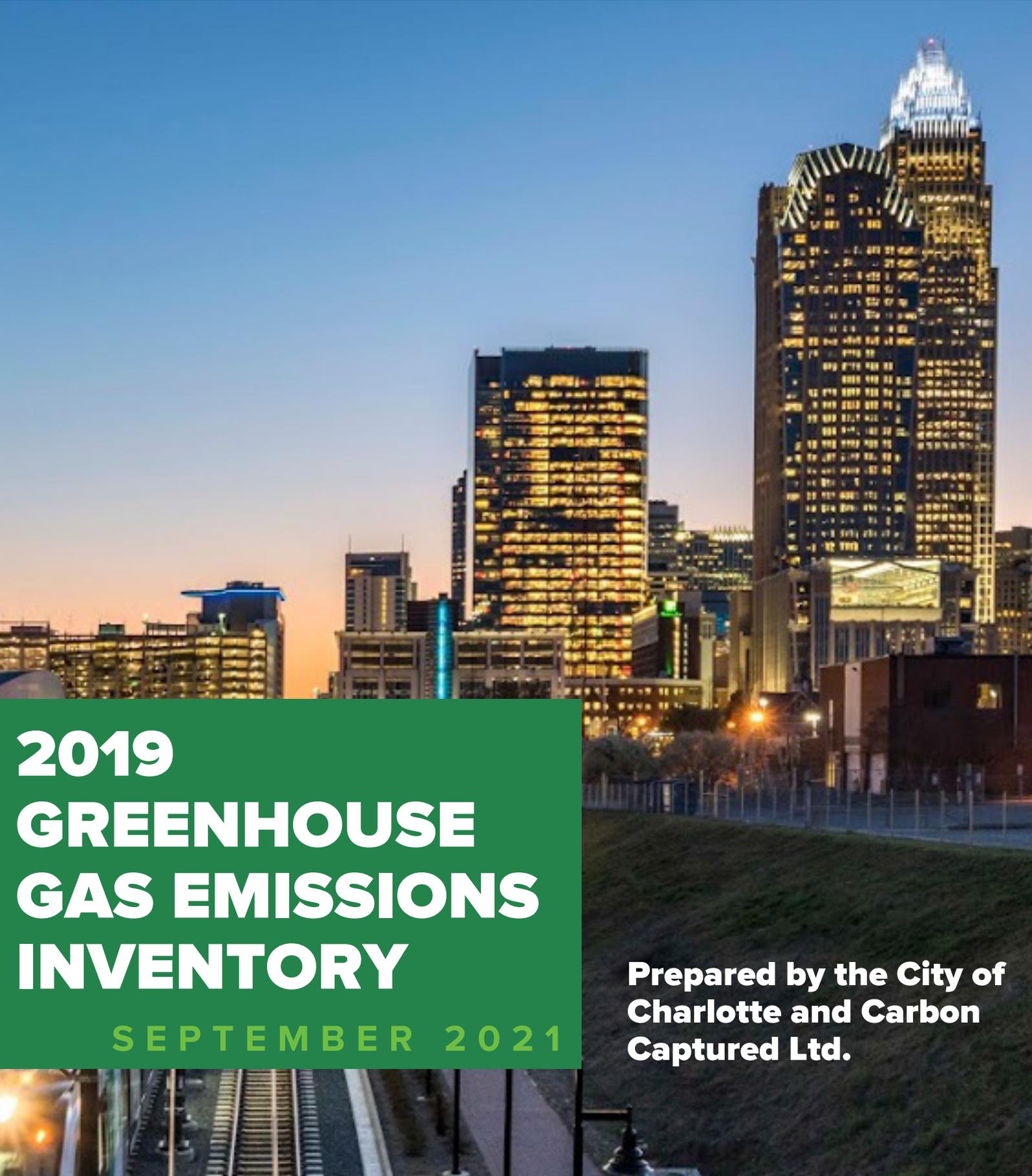
Attachment 2



SEAP

STRATEGIC ENERGY ACTION PLAN

 CITY of CHARLOTTE



2019 GREENHOUSE GAS EMISSIONS INVENTORY

SEPTEMBER 2021

Prepared by the City of
Charlotte and Carbon
Captured Ltd.

BACKGROUND

In 2018, Charlotte City Council unanimously adopted the Strategic Energy Action Plan (SEAP), which sets a community-wide goal of reducing greenhouse gas (GHG) emissions to less than 2tCO₂e (2 tons of carbon dioxide equivalent) per capita by the year 2050, keeping in alignment with the Paris Climate Agreement. The City uses CO₂e, or carbon dioxide equivalent, as the standard unit for expressing GHG emissions to quantify the climate change potential of all greenhouse gases in terms of CO₂.

The SEAP outlines a set of strategies on how to reduce community-wide emissions for a more sustainable, resilient, and equitable future for Charlotte. Accomplishing the carbon reduction goals outlined in the SEAP has the potential to stop the release of up to 240 million tons of carbon dioxide equivalent by 2050. In addition to addressing climate change, the SEAP spurs economic innovation, improves public health, and creates quality jobs for Charlotte.

Conducting emissions inventories is a critical step to identify emission sources, enable progress, and track changes over time. The data in a GHG emissions inventory prioritizes actions to reduce emissions and informs future strategies and next steps. The last inventory for Charlotte, conducted in 2019, used 2015 data and was the cornerstone of SEAP strategies.

PROGRESS

Based on the most recent 2019 data, Charlotte's community-wide emissions are 11.65tCO₂e per capita. This is a 5.8% decrease in emissions per capita from 12.37tCO₂e in 2015. This decrease is influenced by the reduction in the carbon intensity of electricity generation and an increase in population. Since the adoption of the SEAP in December of 2018, the City has been taking bold actions to reduce greenhouse gas emissions both at the municipal level, as well as community-wide.

At the municipal level, Charlotte is focusing on modeling electric vehicle use, emphasizing mode shift in infrastructure investments and planning efforts, increasing the amount of new solar energy in our region, and partnering with local corporations to strengthen the clean energy economy through equitable workforce development programs. With strong public and private actions, future emissions inventories will reflect a continued decrease as our community strives towards the SEAP 2050 goal to become a low carbon city.

SECTOR BREAKDOWN

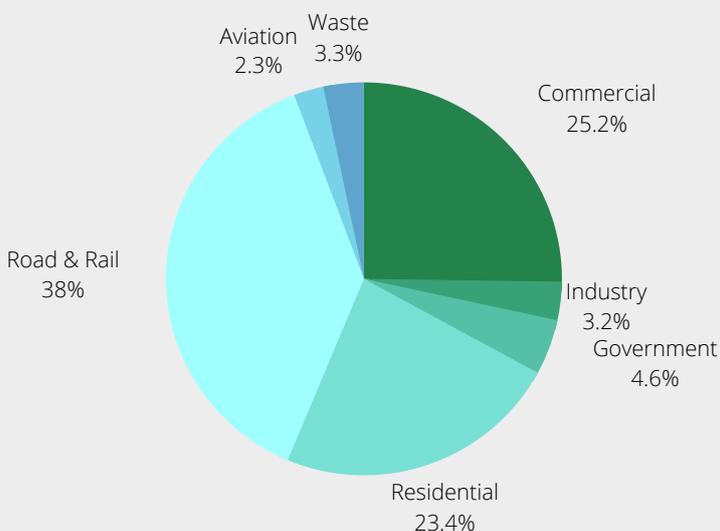
The below GHG emissions inventory is calculated and reported in accordance with the Global Protocol for Cities (GPC) and the Global Covenant of Mayors for Climate and Energy, a global cooperative effort among mayors and city officials to reduce GHG emissions. The community-wide GHG emissions inventory is compliant with the GPC BASIC level of reporting.

As shown in both the 2015 and 2019 emission data, Charlotte's largest emitting sector is transportation. Road and rail transportation now account for 40% (up from 38% in 2015) of the total emissions. This is in part due to Duke Energy's increased use of renewables to power buildings, thereby lowering the emissions in several other sectors. In addition, more internal combustion engine vehicles on the road contribute to increased emissions.

The commercial, government, and residential sectors listed below include GHGs emitted from the electricity and natural gas use in buildings - specifically personal homes, businesses, and public buildings. The industry sector includes GHG emissions from local generators, construction, and any other energy or electricity used to enable large energy consumers, like factories, to operate. Waste includes nitrous oxide emissions from wastewater treatment and methane from food waste in landfill sites. Aviation refers to aviation emissions, related to fuel used for domestic flights.

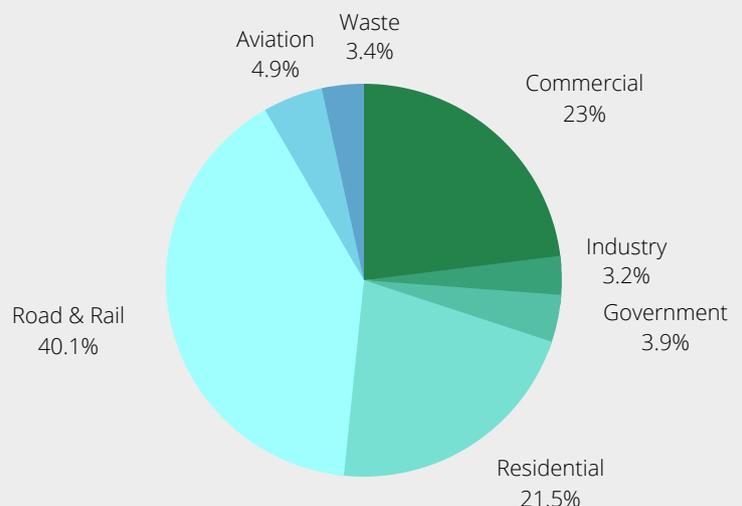
Community-wide GHG Emissions for Charlotte

2015



Total GHG Emissions
10,414,000tCO₂e
12.37tCO₂e per capita

2019



Total GHG Emissions
10,109,000tCO₂e
11.65tCO₂e per capita



SEAP

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The City of Charlotte worked with Carbon Captured Ltd. to update the 2019 greenhouse gas emissions inventory. Carbon Captured Ltd. has developed inventories and provided trainings with cities and regions in 16 countries. Their Director has also been the expert scientist to the EU's Committee of Regions on this topic.

Read the full SEAP at www.charlottenc.gov/seap.

