2019 – 2020 GREENHOUSE GAS INVENTORY FOR CHATHAM COUNTY, NC

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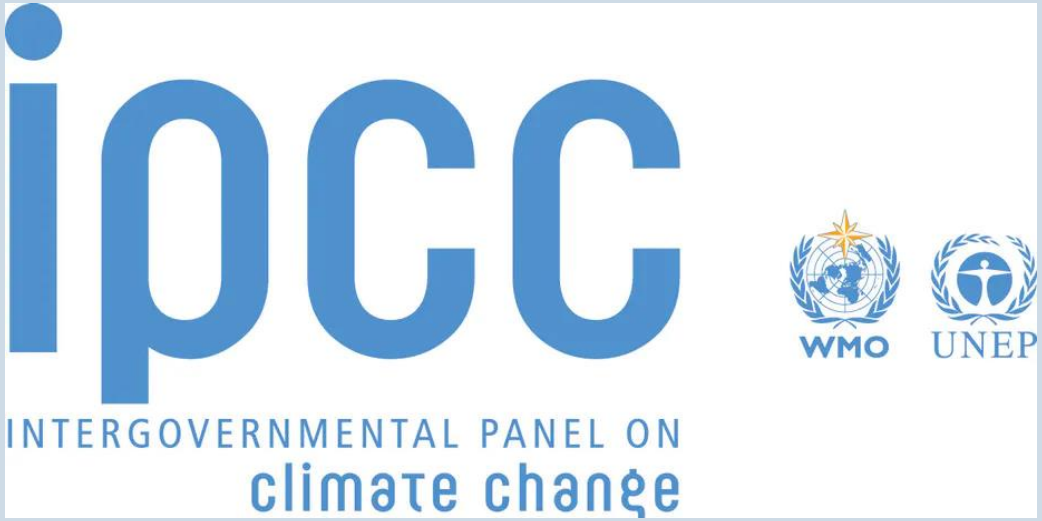
Introduction

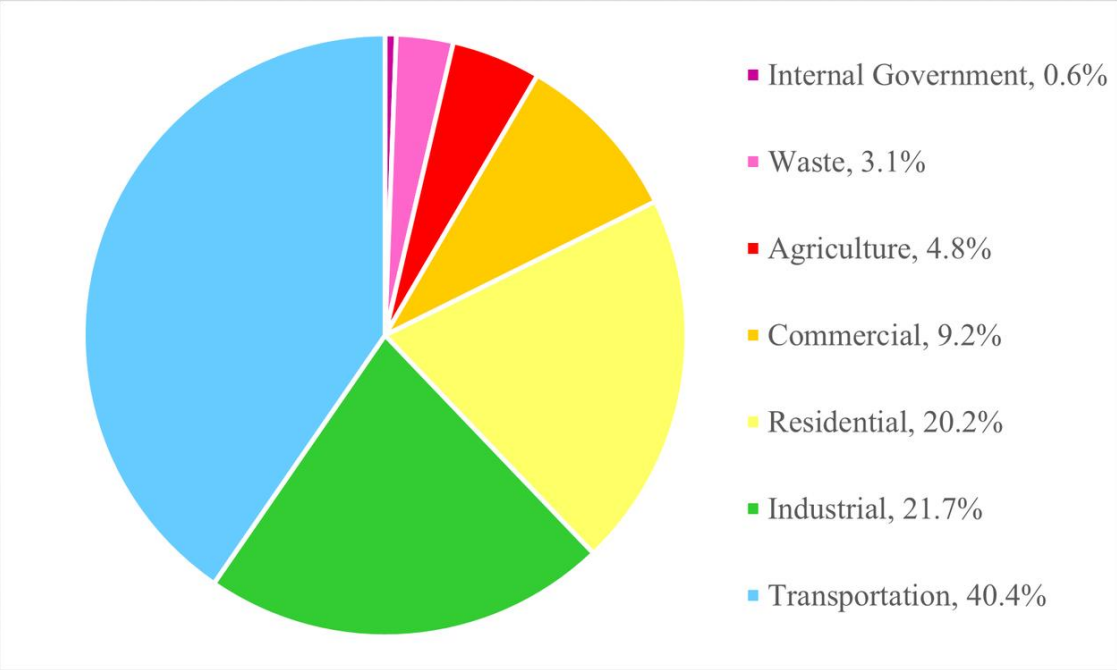
- What is a greenhouse gas inventory?
  - *A report consisting of GHG emission sources and the associated emissions quantified using standardized methods. This data can then be used by the community to understand and identify opportunities for action with the goal of reducing emissions.*
- Previous Reports
  - *Two previous GHG inventories have been conducted*
    - 2010 by Besty McCorkle and Amanda Campbell with assistance from Duke University's Nicholas School of the Environment
    - 2015 by Lauren Joca and Carl Kolosna in conjunction with UNC Chapel Hill PLAN 547 course
  - *Previous inventories lacked access to much of the information available during the creating of this most recent inventory.*

Methodology

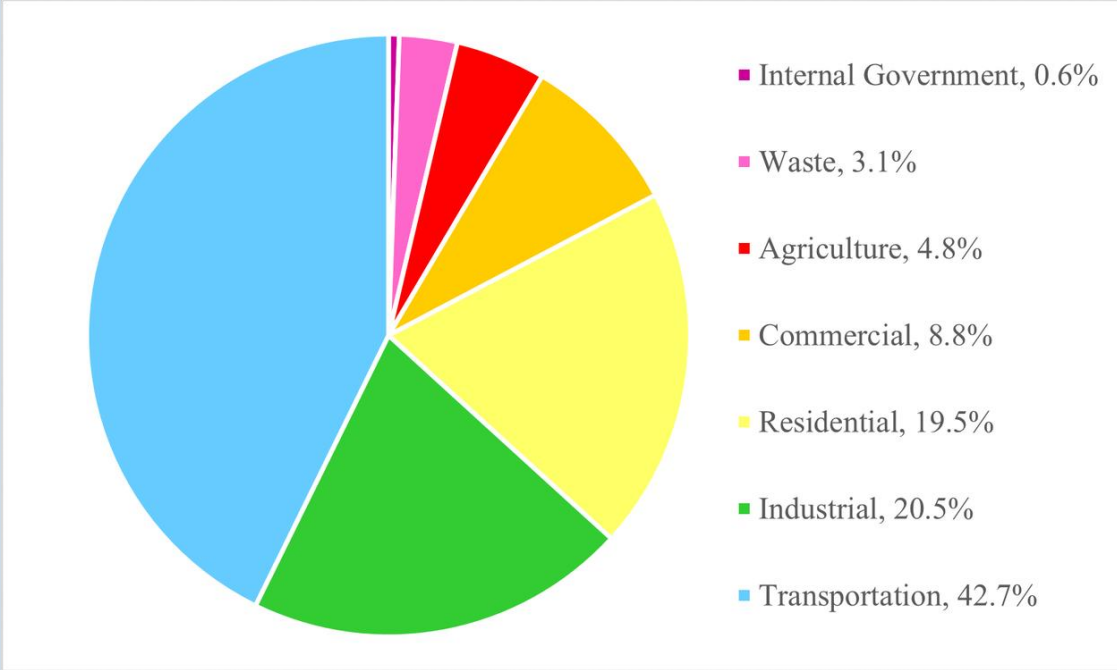
- The International Council for Local Environmental Initiatives' (ICLEI) ClearPath tool was used to convert raw data into CO_2 equivalents (CO_2E).
  - *CO_2E use global warming potentials (GWP) to convert different GHG emissions into the equivalent amount of CO_2.*
  - *GWP was created by the Intergovernmental Panel on Climate Change (IPCC) to determine the effect of different GHG emissions over a 100-year time span when compared to CO_2 emissions.*



Greenhouse Gas Inventory

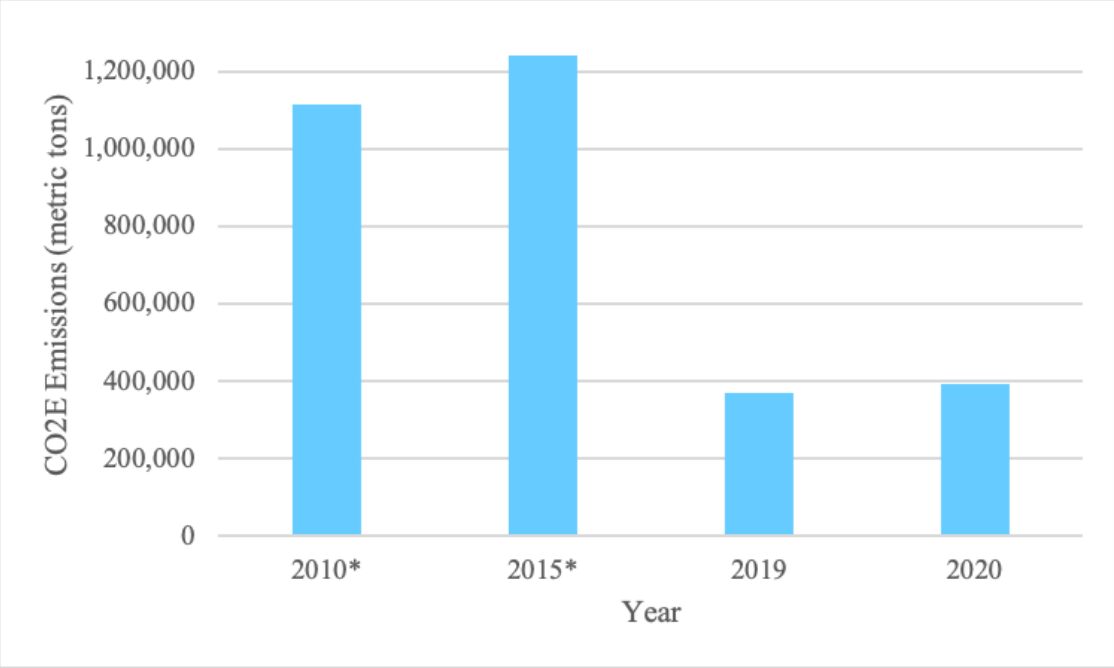


2019 Distribution of CO_2E Emissions in Chatham County by Sector

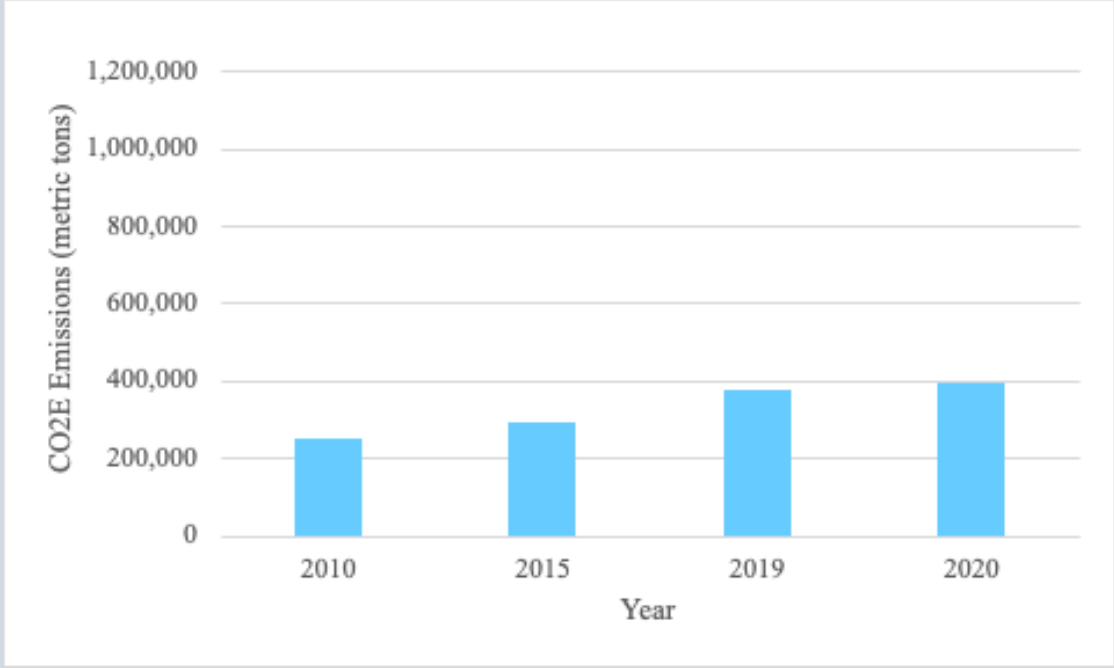


2020 Distribution of CO_2E Emissions in Chatham County by Sector

Transportation CO_2E Emission Comparison

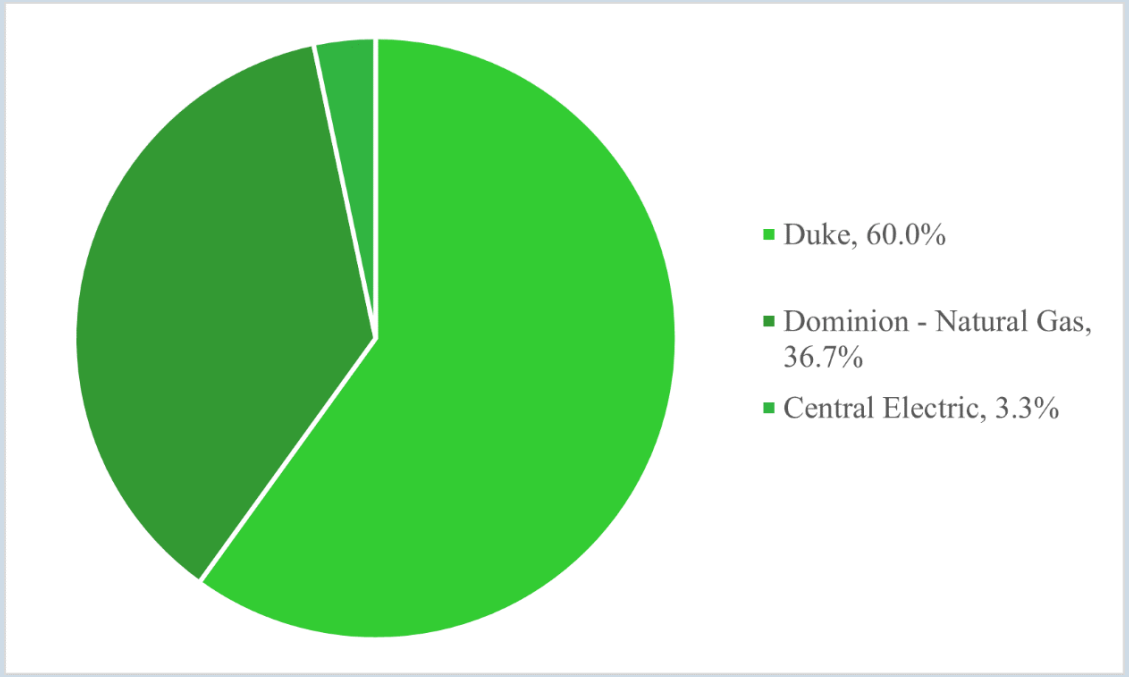


Total Transportation CO_2E Emissions by Year

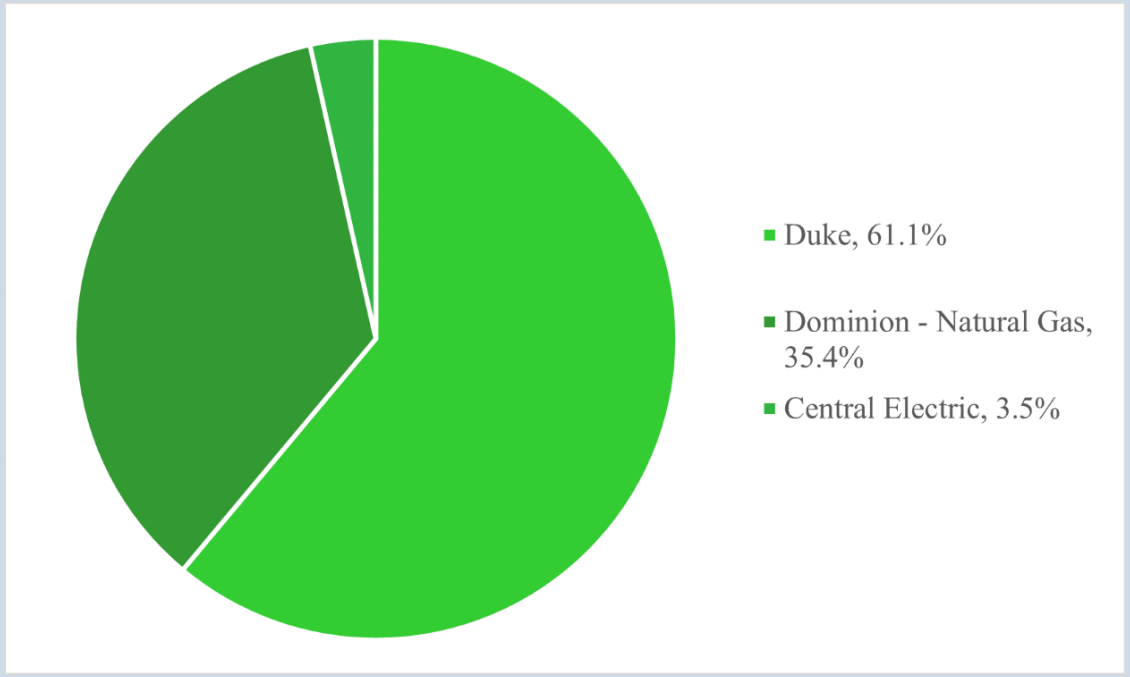


Total Transportation CO_2E Emissions by Year Using Current Data Source

Industrial

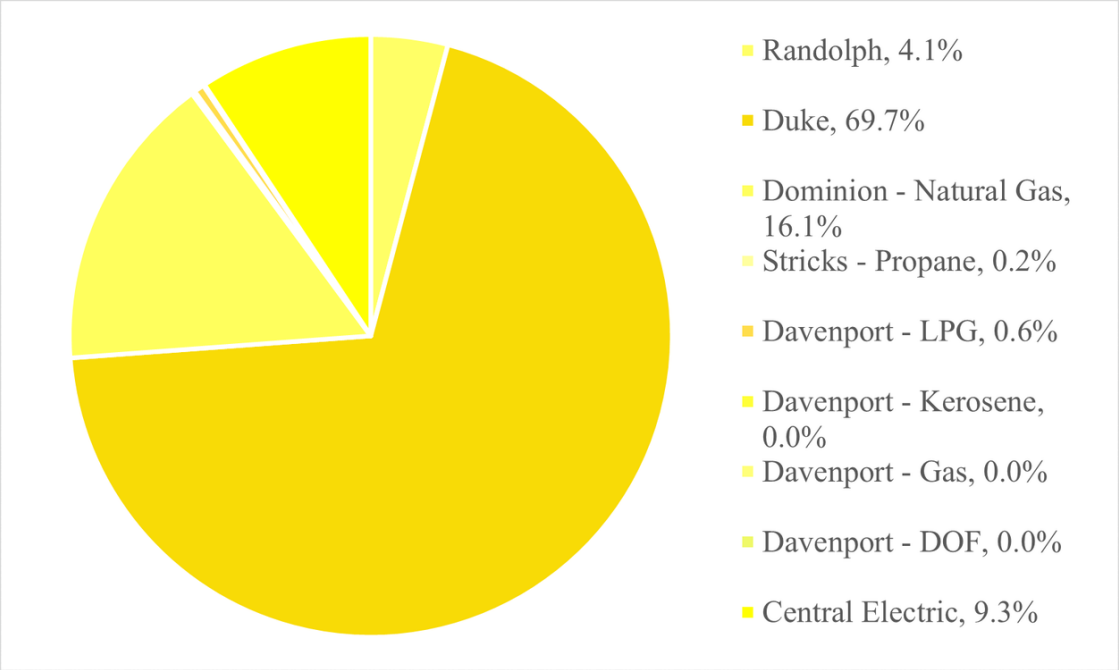


2019 Industrial CO_2E Emissions

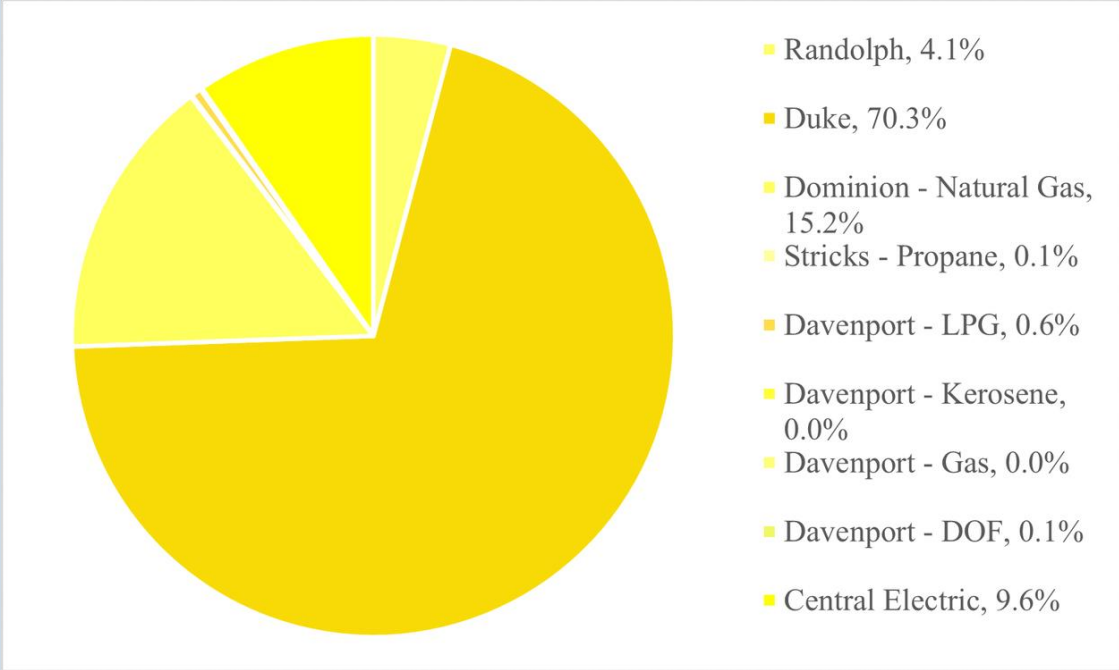


2020 Industrial CO_2E Emissions

Residential

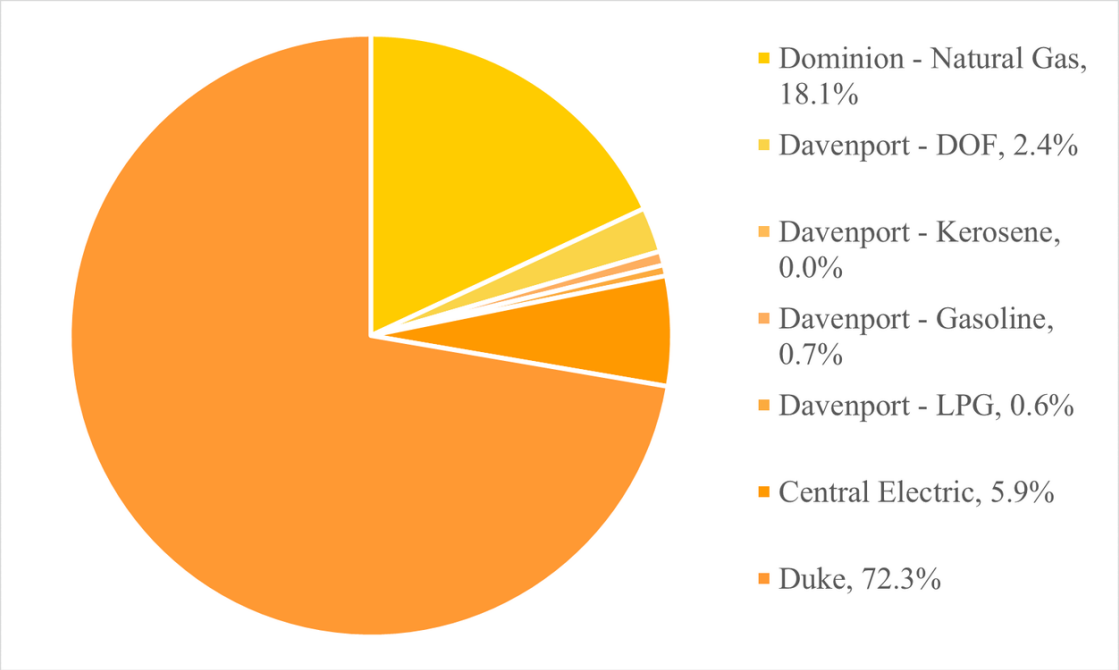


2019 Residential CO_2E Emissions

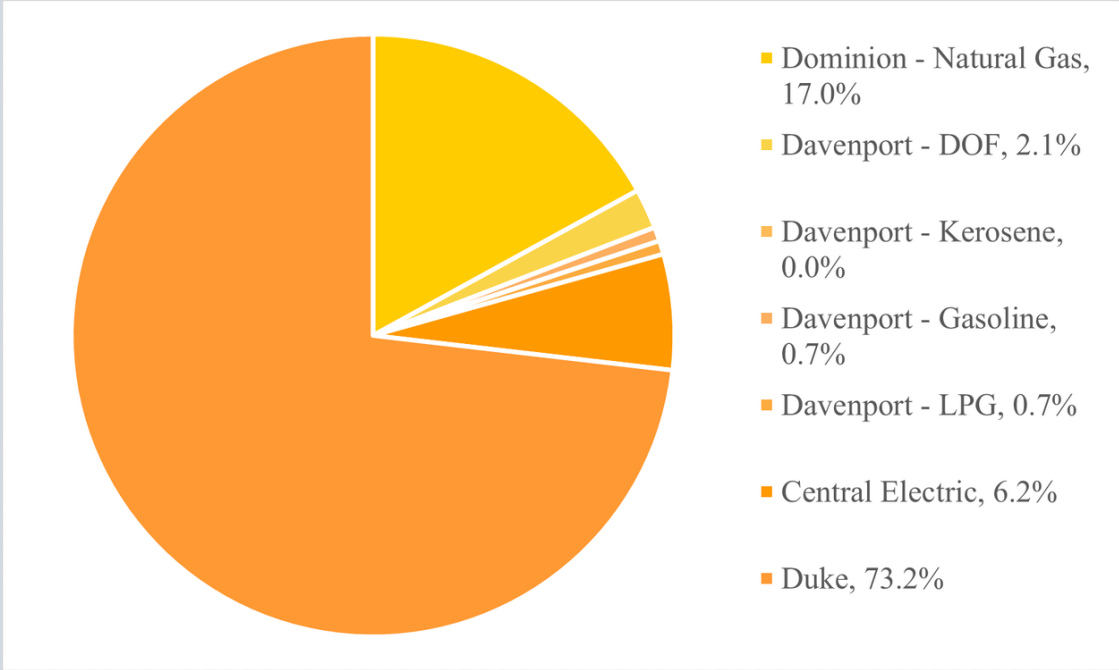


2020 Residential CO_2E Emissions

Commercial

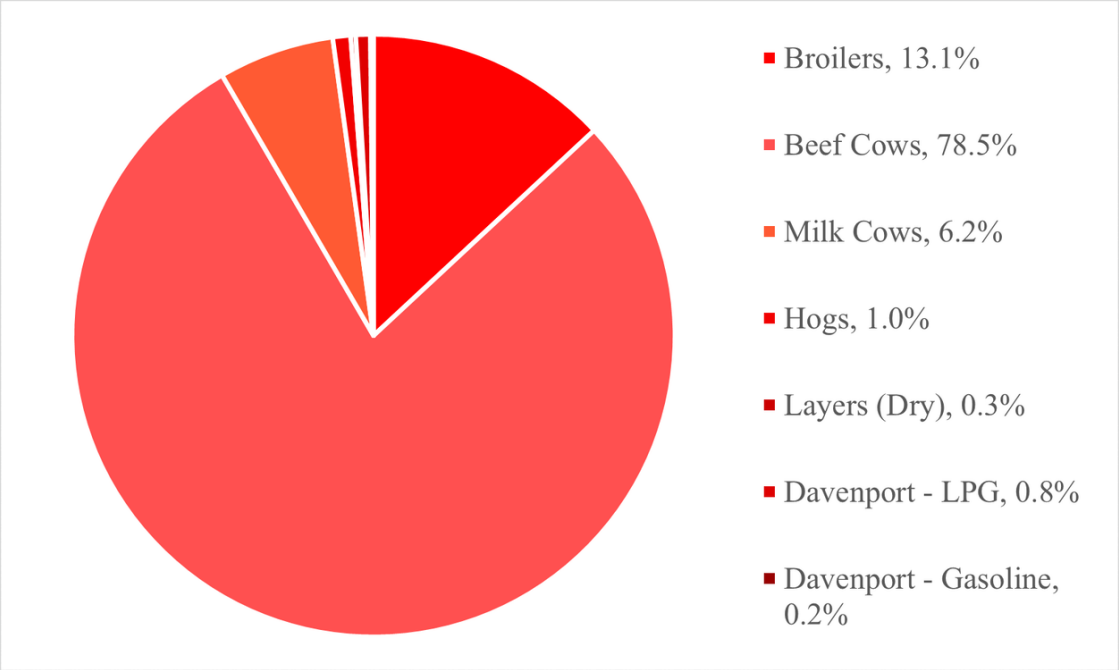


2019 Commercial CO_2E Emissions

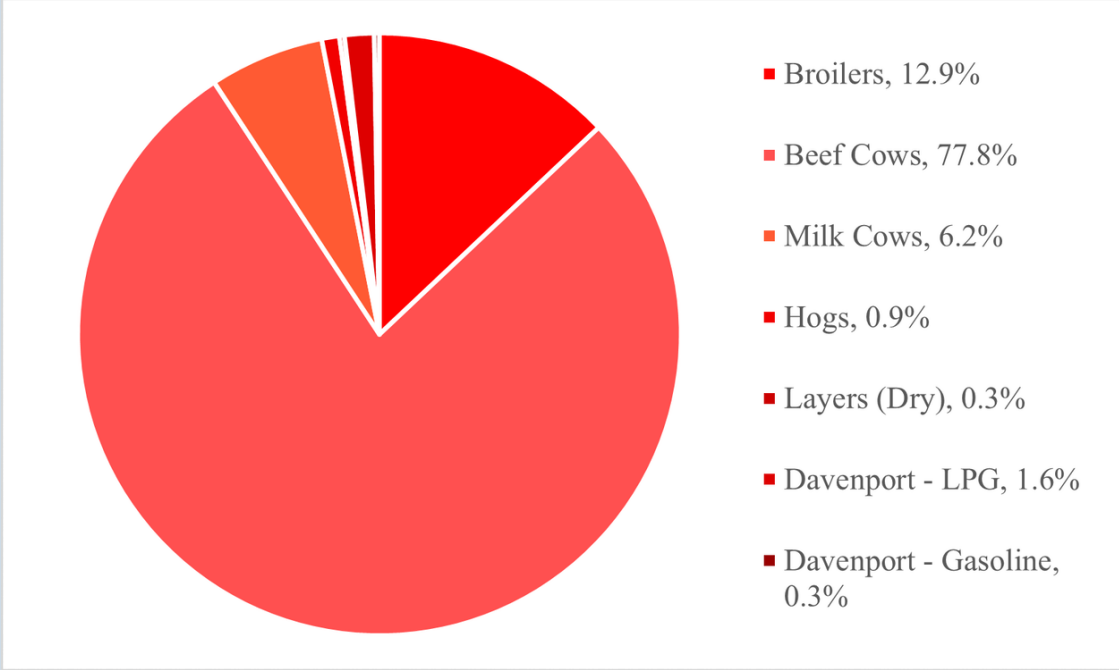


2020 Commercial CO_2E Emissions

Agriculture

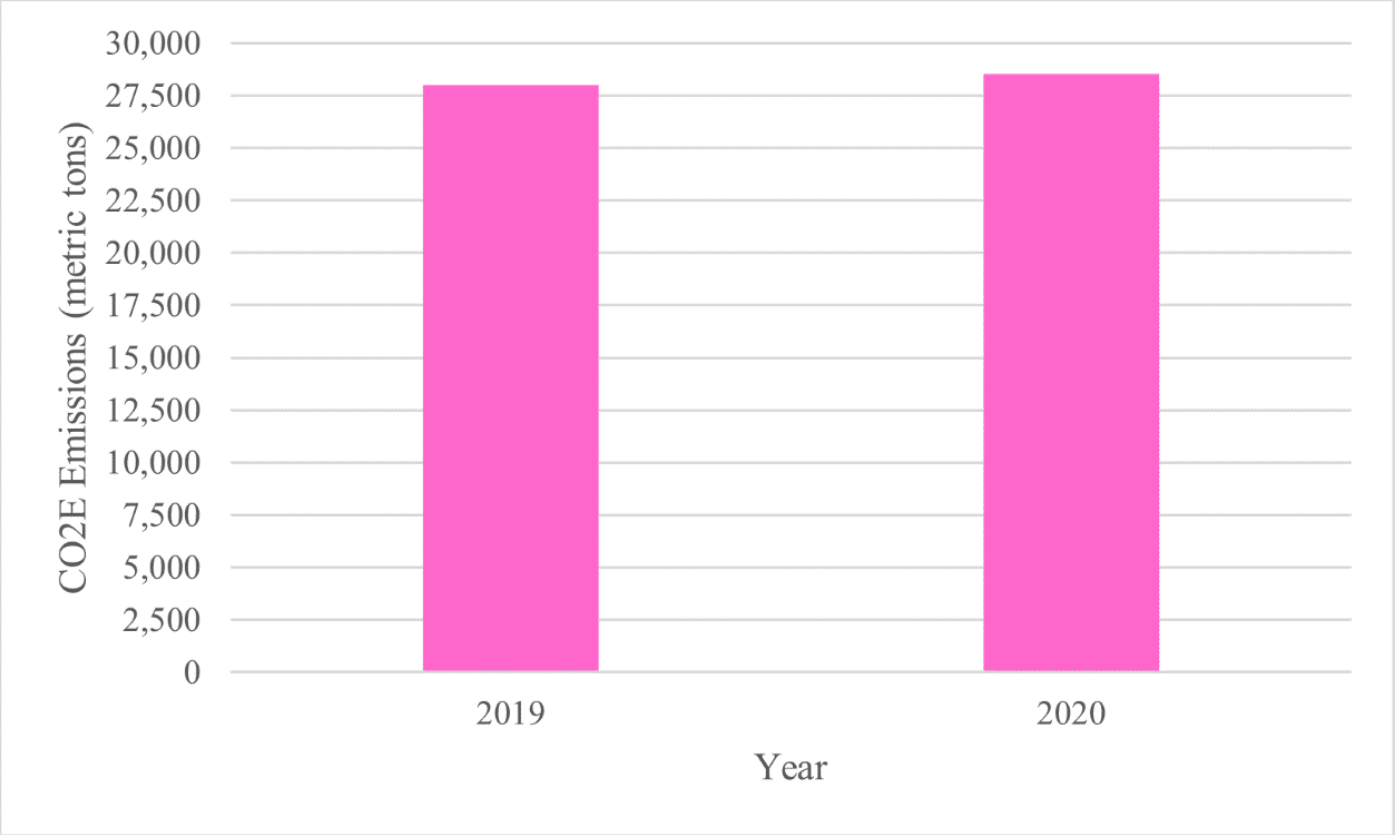


2019 Agricultural CO_2E Emissions



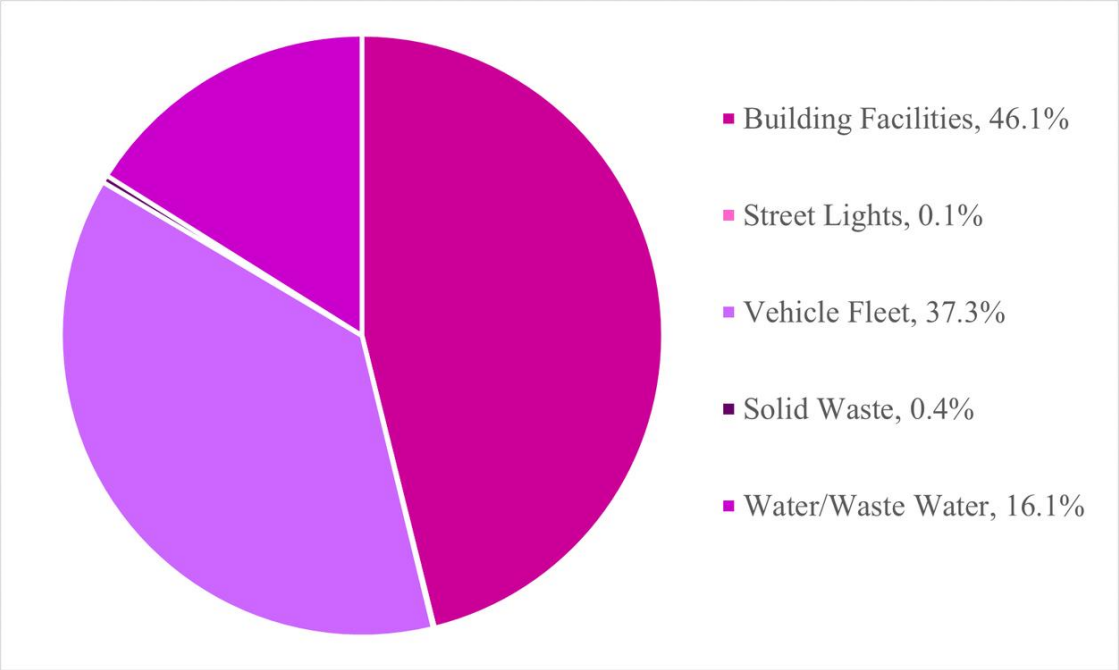
2020 Agricultural CO_2E Emissions

Total Waste CO_2E Emissions by Year

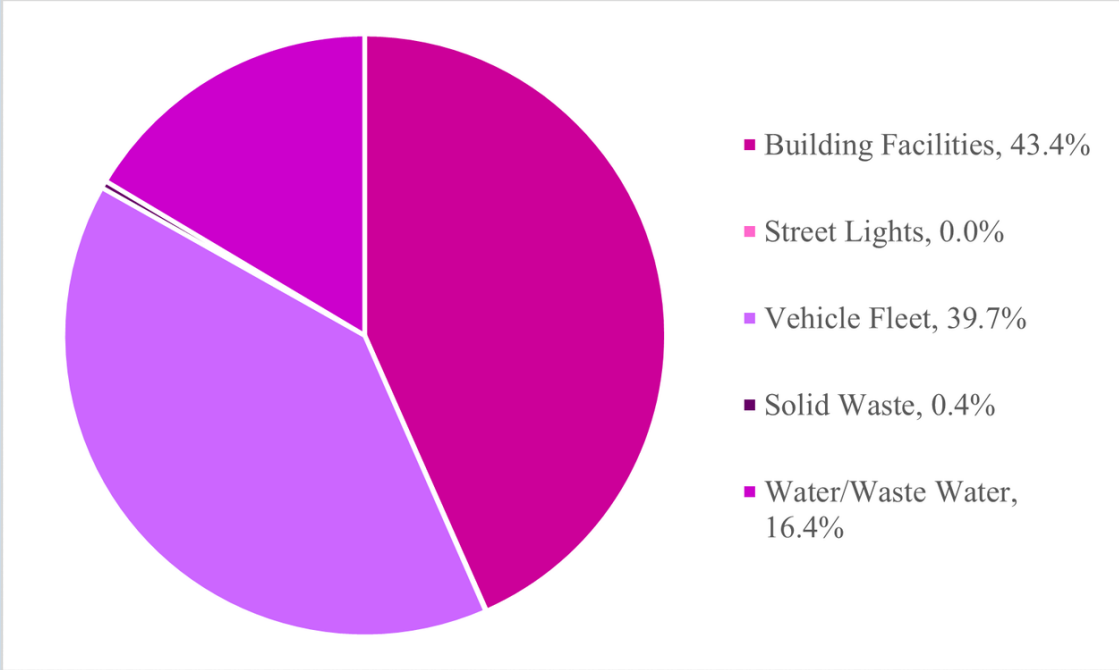


The total waste CO_2E emissions in metric tons by year in Chatham County according to the current inventory. Previous inventories did not account for emissions created by waste.

Internal Government

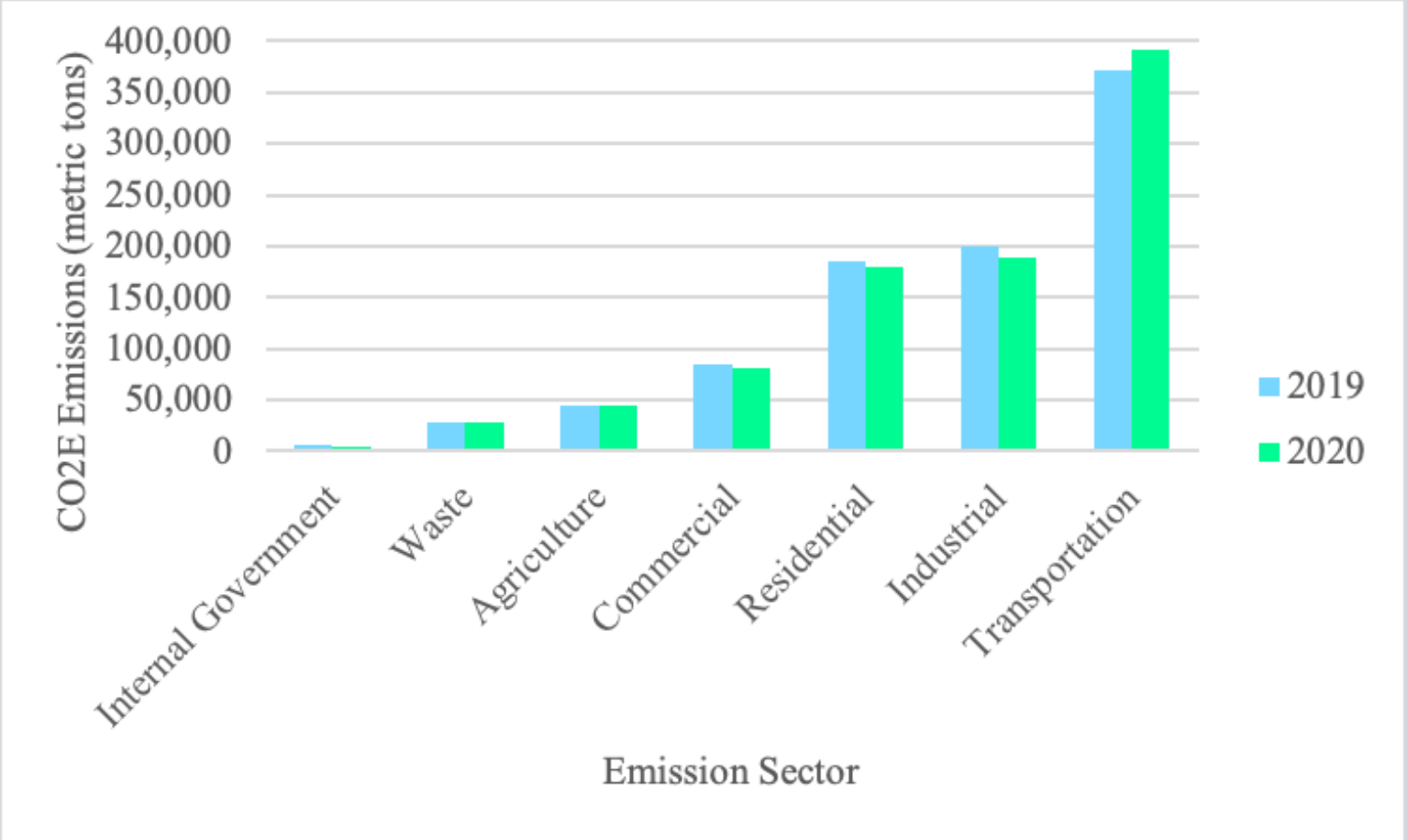


2019 Internal Government CO_2E Emissions



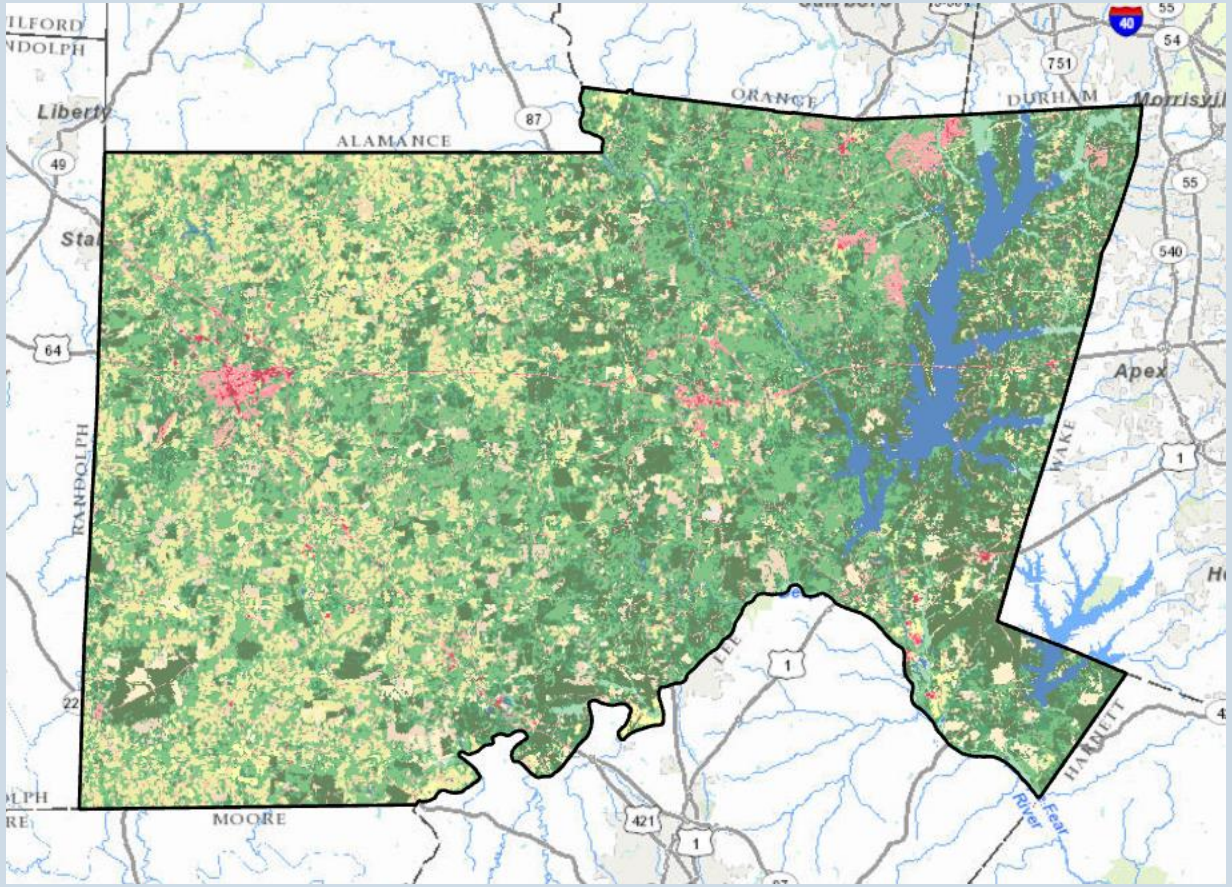
2020 Internal Government CO_2E Emissions

Comparison of Total CO_2E Emissions by Sector



Carbon Sinks

- Carbon sinks are forests, soil, oceans, or other natural environments that absorbs more carbon than they release.
  - *A survey conducted by the National Land Cover Database was used to calculate areas of carbon sinks. At the time of this report, the most recent survey conducted showed the land cover for 2016. This data was then converted into a GIS file where areas of carbon sinks were calculated.*
- Around 456 square miles, 65% of the area, in Chatham County contained some form of carbon sink, most commonly forest areas.



A Note

- Duke Energy's Cape Fear Staged Turbulent Air Reactor (STAR)
  - *According to the facility's application to the NC Division of Air Quality, the STAR Facility has the potential to emit an additional 156,869 tons CO_2E (around 142,309 metric tons) per year, about 15% of the current 2019 and 2020 yearly emissions for the county.*

Conclusion

- Greenhouse gas inventories are important tools in the fight against climate change.
  - *Going forward, this inventory lays out reliable data sources and methodology for future inventories which should make comparison simpler in future years.*