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In fiscal year (FY) 2020, the College of Charleston produced **37,272 metric tons** of greenhouse gas (GHG) carbon dioxide equivalents (mtCO₂e). This is a 19% decrease from the College’s emissions during FY19, a drastic decrease in comparison to previous emissions reports from FY15 and FY13 (Figure 1). The COVID-19 pandemic is largely responsible for this drastic shift, as the categories that decreased the most were all travel related. Directly Financed Air Travel, Other Directly Financed Travel (buses and vans used by the College), and Study Abroad Travel all fell nearly half to two thirds compared to FY19. Calculated staff, faculty, and student commuting all fell significantly as the campus instituted remote learning beginning in March 2020 to prevent the spread of COVID-19. Remote learning was used throughout the 2020-2021 academic year, and the majority of faculty and staff did not begin returning to campus until March 2021 when a return-to-work plan was implemented on campus.

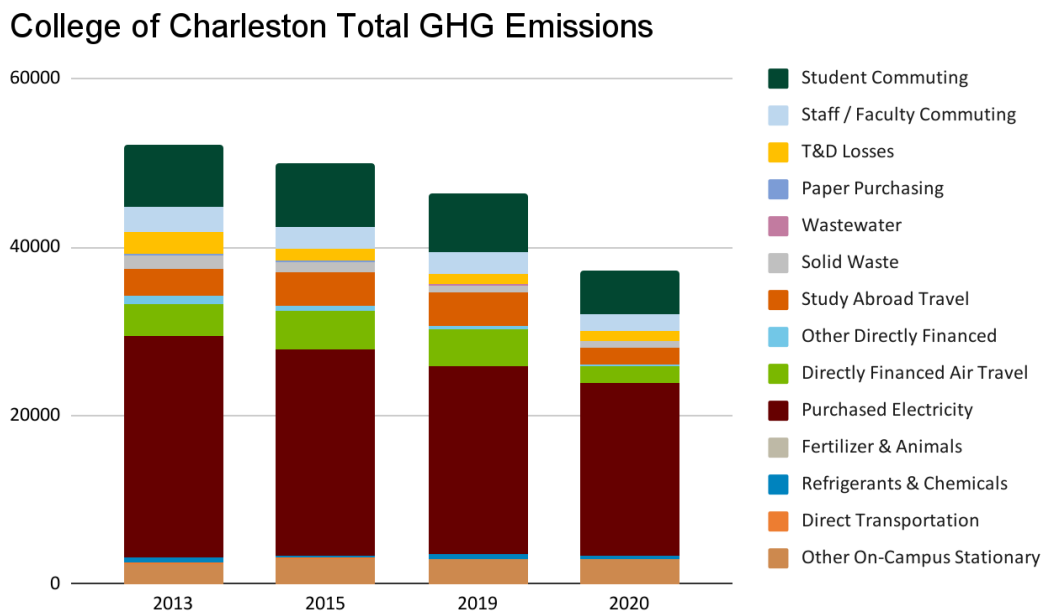


Figure 1: Greenhouse gas emissions by fiscal year

Figure 2 breaks down the College’s emissions by category. The biggest emissions producer is energy, comprised of purchased electricity, on campus stationary fuel use (natural gas), and electricity transmission and distribution (T&D) losses. This category decreased 2.8% since FY19, and is likely due to fewer people on campus during the college’s COVID-19 shut down. Given how campus use was reduced significantly in FY20, it is possible this number could have decreased even more if power saving practices, such as automatic motion sensor lights, and better HVAC regulation had been utilized on a wider scale throughout the campus. These types of practices will be implemented through the new Energy Savings Performance Contract that began in July, 2021.

College of Charleston FY20 GHG Emissions

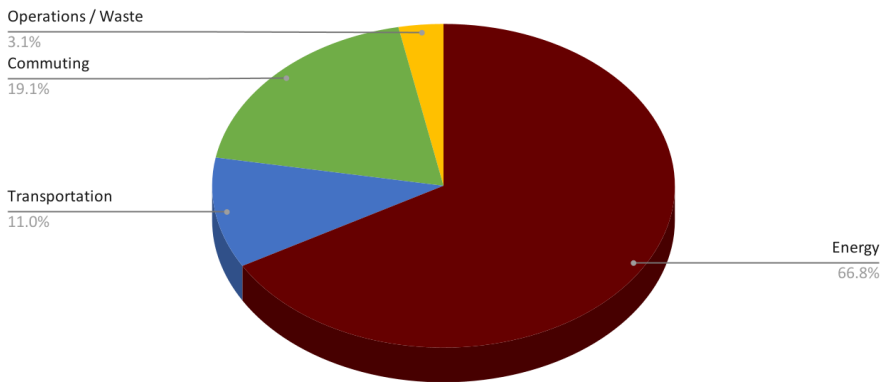


Figure 2: FY20 greenhouse gas emissions by category

Emissions by Scope

Data calculation for institutional greenhouse gas emissions can be broken down into three different scopes to quantify the College’s impact on the environment. Scope 1 (Figure 3) consists of on campus stationary fuel consumption (natural gas), direct transportation, refrigerators & chemicals, as well as fertilizer use & animals (horses).

FY20 Scope 1

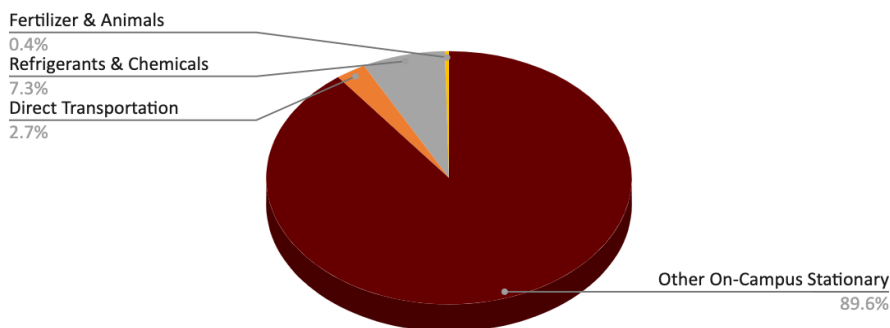
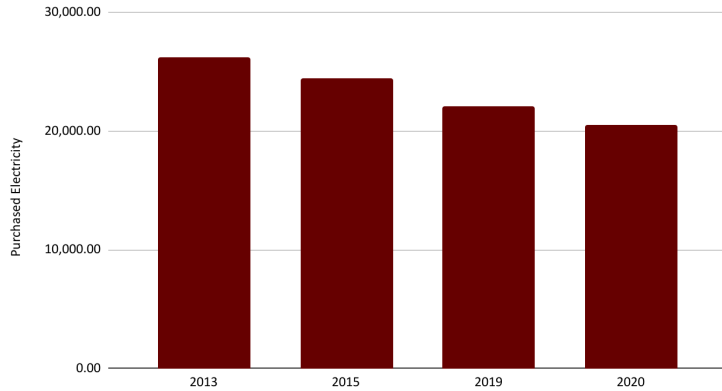


Figure 3: Scope 1 for FY20. This category comprises emissions from Other On-Campus Stationary fuels, Direct Transportation (on campus fleets), Refrigerants & Chemicals, and Fertilizers & Animals.

On campus stationary fuel dominates Scope 1 emissions and is also part of the campus’s energy use. Instituting better heating and cooling practices for buildings throughout campus could reduce this category in the future. A recent survey by CSD asked students what sustainable measures they’d like to see on campus and some students reported

experiencing excessive cooling in the buildings they frequented and suggested better HVAC regulation to be implemented for both comfort and energy efficiency.

Scope 2 GHG Emissions



Scope 2 (Figure 4) accounts for the College’s purchased electricity, which fell 7% from FY19. This indicates that the reason the campus’s overall energy consumption only fell 2.8% lies in on-campus stationary fuel compared to purchased electricity usage.

Figure 4: Scope 2 (Purchased Electricity) for FY20

Scope 3 (Figure 5) is made up of student/faculty/staff commuting, operational emissions (waste, paper purchasing, and T&D losses), as well as financed travel. This category fell sharply as student study abroad trips were cancelled and athletic team travel was suspended for most of the year. This decrease in emissions is likely not sustainable and is expected to return to numbers similar to FY19 in the FY21 report.

Scope 3 GHG Emissions

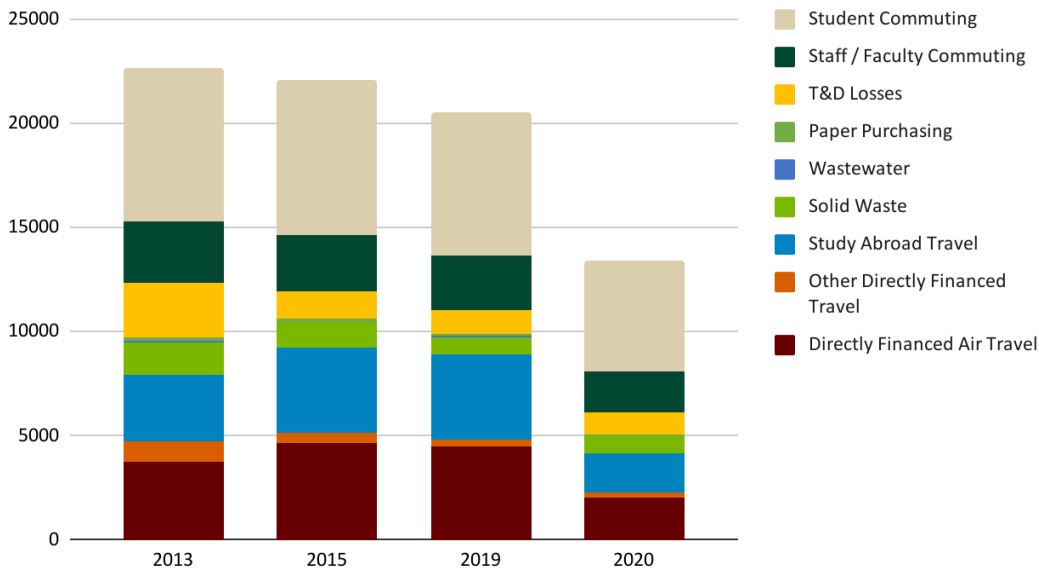


Figure 5: Scope 3 for FY20. This category consists of commuting, financed travel, and operations.

Updates & Recommendations

Due to the pandemic, this data cannot show what changes made in FY19 reduced emissions, but it is still valuable to continue reducing carbon emissions. This year, Facilities Management and the CSD are instituting and revamping several projects to continue emissions reduction. Facilities Management has launched a 15-year Energy Savings Performance Contract with Siemens estimated to reduce our emissions by up to 20%. In the Fall 2020 semester, a composting program will be implemented at the Warren residence halls as a pilot program for hopeful implementation throughout all campus housing. Additionally, the campus bike share program will be relaunched to provide students, faculty, and staff with free bikes in an effort to provide greater access to transportation and reduce commuting emissions further. Signage for landfill, recycling, and compostable items has been updated across campus in hopes of educating people on proper waste diversion, however reducing waste at the source would likely be the most effective approach. As vaccination rates across the College and the greater area of Charleston progress, we encourage the College to reduce the use of single use containers in on campus dining and allow students to bring reusable alternatives.

Since the FY19 report was completed, we've made forward momentum on six of the 11 recommendations included, such as:

- a standardized data collection method has been completed for all future GHG inventories;
- the Energy Savings Performance Contract has been initiated;
- a new partnership with CARTA for an Alternative Transportation Ride Along event is scheduled;
- work with the graduate program on investigating Stono Preserve as a carbon sink is underway;
- duplex printing has been included as a student government resolution; and
- centralized recycling will be implemented this fiscal year.

Assumptions / Updates

Data of student, faculty, and staff commuting was calculated based off of the FY19 commuting survey conducted by CSD. The weeks of mandatory shut down for COVID-19 was subtracted from these numbers, estimating only 10% of staff and faculty were on campus during these months. Virtual learning continued for most of the year and it is possible that could impact these numbers in ways that cannot be accounted for.

For the FY20 report, we continued to use the University of New Hampshire's SIMAP program to calculate our emissions. We updated our calculations to the 2020 emissions factors, as recommended by SIMAP. We did not add in any new categories of emissions for this year.

Acknowledgements

The College of Charleston's campus community is vital to the creation of the FY20 Greenhouse Gas Emissions Inventory. The support, cooperation, and time dedicated by these valued colleagues made this report possible. The Center for Sustainable Development extends our deepest thanks and appreciations.

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