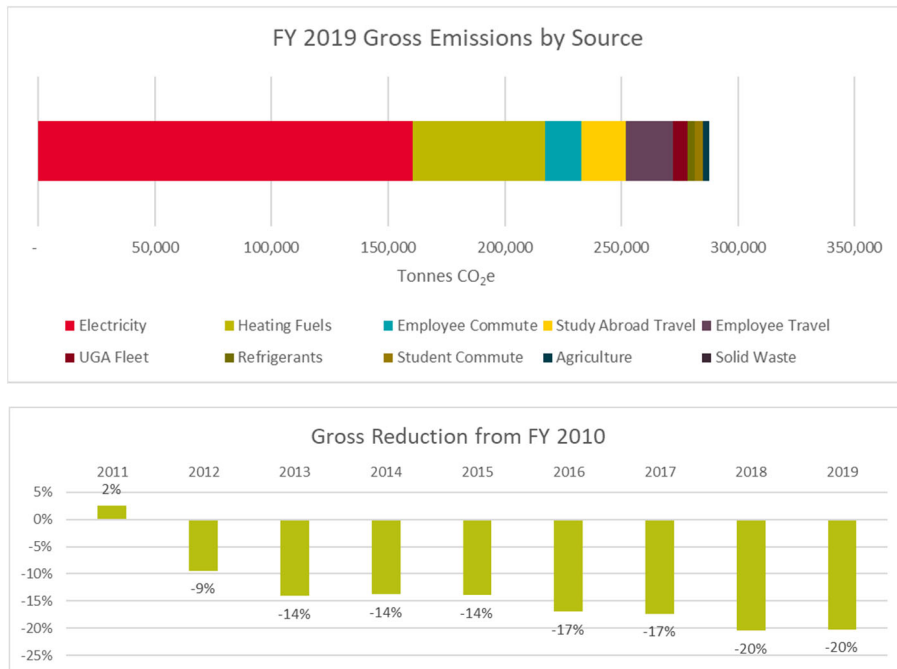


UGA GREENHOUSE GAS INVENTORY PRIMER 2019

EMISSIONS SOURCES AND OFFSETS FOR FISCAL YEAR 2019

Summary

In fiscal year 2019 the UGA activities shown below were responsible for 287,771 tonnes (aka "metric tons" or 1,000 kg) of carbon dioxide equivalent (CO₂e) gross emissions. This is a 20% reduction from FY2010. The emissions sources are mostly Athens-based with the exception of electricity and heating fuels, which include relatively small amounts from the Griffin and Tifton campuses, and agriculture, which occurs statewide.



Sources

Electricity (55.7%)

Emissions for electricity generation are calculated with EPA's eGRID 2018 emission factor for the SRSO sub-region.ⁱ Of all UGA's statewide electricity usage, 99% occurs on the main Athens campus. The regional trend away from coal-fired generation since 2010 led to a large part of the emissions reductions shown in subsequent years.

Heating Fuels (19.7%)

On-site heating fuel consumption is largely natural gas, with some fuel oil (none used in FY2019) and coal (discontinued after 2015). Typically over 70% of the heating fuels consumption occurs at the Central Steam Plant on the main Athens campus. Total heating fuels emissions dropped 19% from FY2010 to 2019 due to aggressive efficiency measures in the steam system.

Employee Commute (5.4%) and Student Commute (1.2%)

Employee and student commute emissions are based on a 2014 study and survey conducted in partnership with UGA Parking Services.

Study Abroad Travel (6.7%)

Study abroad travel emissions are based on the UGA Factbook listing of the number of students who traveled to each country, the flight miles between ATL and the destination airports, and current international jet fuel efficiency from the Bureau of Transportation Statistics (BTS).

Employee Travel (7%)

Employee travel emissionsⁱⁱ include domestic and international air travel as well as reimbursed personal vehicle miles. Air travel emissions are calculated using UGA Accounts Payable travel expenditure data, the current dollars per mile conversion from MIT's Airline Data Project, and the emissions per mile method described above. Emissions from employees using their personal vehicles for business travel are calculated from Accounts Payable reimbursement data and the current year dollars per mile rate, factored with the current BTS light vehicle average fuel economy.

UGA Fleet (2.1%)

University fleet vehicle emissions are based on the total gasoline and diesel consumption by all university cars and trucks as well as the UGA Campus Transit buses. Emissions are calculated directly from the quantities of each fuel type for the year.

Refrigerants (1.2%)

Commonly referred to as "Freon," refrigerants are the fluids used in large and small refrigeration and HVAC systems. Emissions related to refrigerant leakage are based on UGA's replacement logs for the six most commonly used and most potent greenhouse gas refrigerants: R22, R11, R410a, R404a, R134a, and R123.

Agriculture (1.0%)

Emissions related to UGA's statewide agriculture activities are based on synthetic and organic fertilizer applications as well as enteric fermentation and manure management for beef and dairy cows, swine, sheep, horses, and poultry. Quantities of each were estimated in 2014 and emissions are calculated using EPA factors.

Offsets

Solar

Georgia Power owns and operates one megawatt of their solar resource on UGA property along South Milledge Avenue through a research partnership with the university. The energy it generates feeds directly to the grid, while UGA retains the renewable energy credits (RECs). The array generated 1,667,450 kWh in 2019, offsetting about 0.5% of UGA's consumption of electricity from the grid.

Solid Waste

Prior to 2013 the solid waste UGA sent to the Athens-Clarke County landfill was counted as a source of emissions; in FY2012 this amounted to 5% of UGA's gross emissions. After that point the county installed methane capture and electricity generation, so using a standard method from Clean Air, Cool Planet (in turn based on EPA figures) the related emissions from solid waste disposal are counted as a small offset of 164 tonnes of CO₂e. Estimates of food scraps diverted from the landfill and composted at the UGA Bioconversion Center yield an offset of 1,072 tonnes of CO₂e.

Timber

UGA statewide timber holdings represent a sizeable offset of 70,773 tonnes of CO₂, according to a 2013 study of their carbon sequestration potential by the Warnell School of Forestry.ⁱⁱⁱ

ⁱ Emission factors are released biennially two years after the subject year.

ⁱⁱ Prior to FY2019 and the implementation of OneSource the accounting records did not capture all employee airline travel as a discrete line item. Therefore this is the first year that all employee airline travel is accounted for and separated into domestic and international flights.

ⁱⁱⁱ While the sequestration value is not in doubt, offsets from UGA's timber holdings do not have additionality, meaning that carbon sequestration is not the reason UGA maintains ownership, even though it is a benefit of ownership, and there is no commitment to maintain them as carbon sinks. Additionality is a hotly debated topic but usually required for official offset programs.