

MASON'S GREENHOUSE GAS INVENTORY FY2019



Prepared by the Office of Sustainability

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EMISSIONS DATA

Mason's FY19 footprint: 106,216 gross¹ metric tons CO₂ equivalent² (MTCDE)

- Reflects all Mason properties under operational control (all campuses except Mason Korea and parts of Smithsonian Mason School of Conservation): 7,024,445 GSF³

SUMMARY

In July, 2020, Mason's Office of Sustainability (OoS) embarked on the university's greenhouse gas (GHG) inventory, performing the analysis in-house for the first time in over a decade. By performing the data collection and analysis internally, we saved \$20,000 and took control of the analysis and reporting process. We calculated the university's carbon impact using the University of New Hampshire's [SIMAP](#) platform. The SIMAP team provided advice and insight and independently reviewed our data. After SIMAP's review, our inventory was sent to [Second Nature](#), the organization supporting the [Presidents' Climate Leadership Commitments](#) (formerly known as the American College & University Presidents' Climate Commitment).

As a 2007 [charter signatory](#) of the [Carbon Commitment](#), Mason initially committed to achieve a minimum 80% reduction in net GHG emissions – based on a 2006 baseline – by 2050, while investing in carbon offsets to counterbalance all remaining emissions. Mason has not made significant progress toward its carbon-reduction goal. Our gross metric tons CO₂ equivalent (MTCDE) or footprint at Mason has hovered between [100,000-120,000 MTCDE](#) for nearly 15 years. We suggest that the newly established Mason Sustainability Council (MSC) should begin the process of updating and revising Mason's [2010 Climate Action Plan](#) to better reflect current science and the demands of our students, faculty, staff, and alumni. Additionally, due to scientific [evidence of a worsening climate crisis](#), we ask President Washington and the MSC to urgently consider adjusting our target date and benchmarks for carbon neutrality to meet the need for climate action and align Mason with other leading institutions and universities.

RESULTS & RECOMMENDATIONS

- **Purchased electricity, and associated transmission and distribution losses (Scope 2 emissions), are Mason's largest emissions source (36.7%).**
 - We recommend Mason commit to, and invest in, energy efficiency projects in addition to renewable energy procurement and projects.
- **When combined, student, staff, and faculty commuting are our second-largest source of emissions (31%), and the largest portion of our Scope 3 emissions.**
 - Mason built on its recognized strengths as a distance education leader during COVID-19 by strengthening its virtual infrastructure. We recommend the university capitalize on this growth by supporting new opportunities for expanded employee telework and shared office space models, which promote well-being, and reduce both commuting frequencies and building energy needs.
 - We urge Mason to explore the development of affordable and accessible on-site housing to reduce Scope 3 emissions and commute times and help address the disproportionate impacts of the region's high cost of living.

¹ Our gross (106,216.35) and net (106,216.29) MTCDE are so similar due to minimal carbon offsets or sinks to shrink our net emissions.

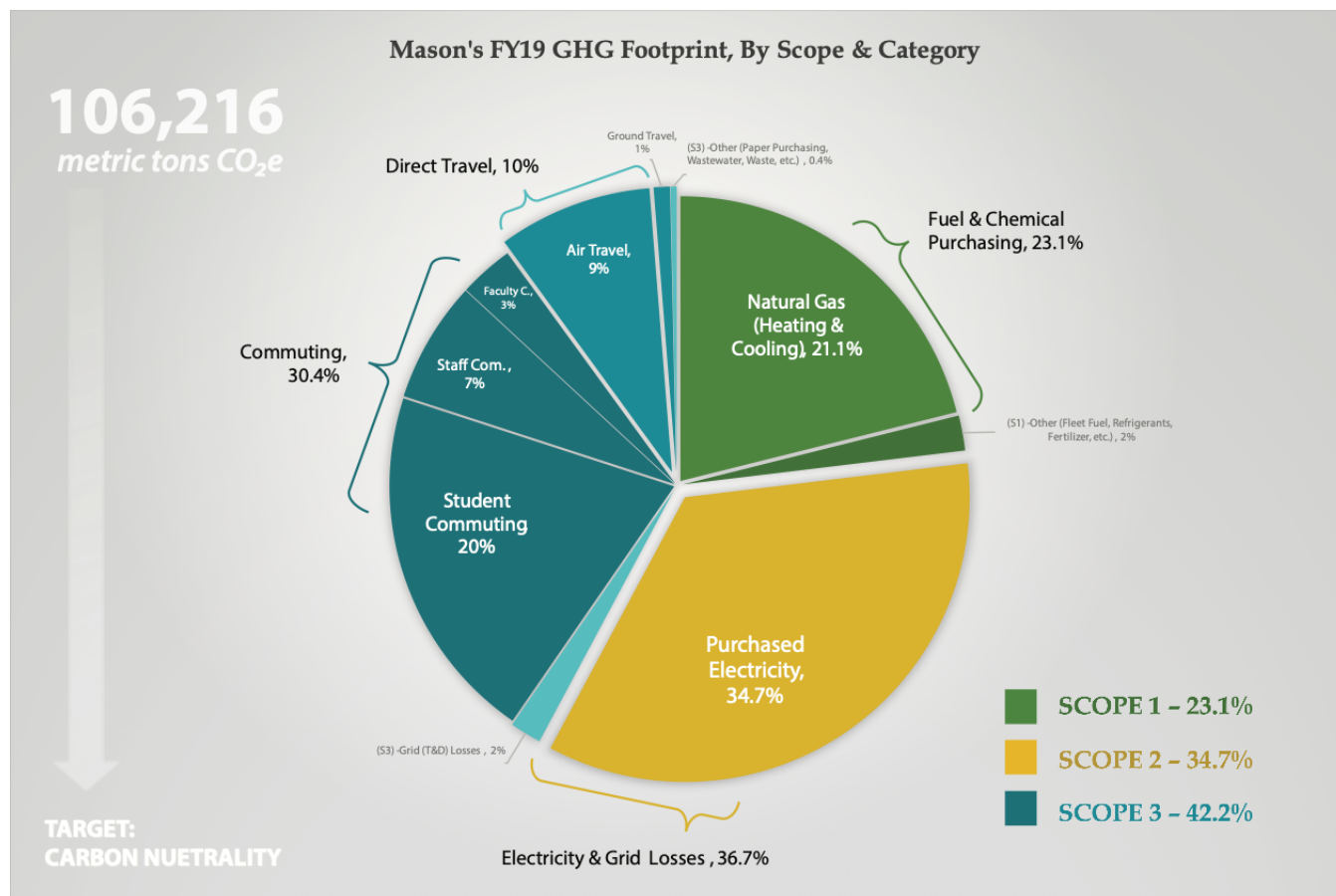
² Other air pollutants with varying global warming potentials (GWP) are represented in MTCDE numbers; equivalency [calculations](#) to CO₂ allow for standardized reporting.

³ Includes athletics structures, but not fields; includes parking structures, but scaled to 3.8% to reflect energy use intensity (EUI).

- **On-campus combustion of natural gas, vehicle fuels, and refrigerant use (Scope 1 emissions) represent our third-largest GHG source (23.1%).**
 - We encourage Mason to research efficiency measures to reduce Scope 1 emissions, including exploring innovations and offsets for the central heating and cooling plant.
 - We recommend right-sizing and centralizing governance of Mason's vehicle and Multi-Purpose Utility Vehicle (MUV) fleet for improved management and green purchasing compliance, and the development of a plan for a transition to a 100% green fleet (e.g., electric vehicles) with a specific series of target dates.
- **Our total Scope 3 emissions** (which include waste and wastewater, paper purchasing, and air and ground travel) **are 42.2%** of our carbon footprint.
 - We require more detailed, electronic vendor purchasing records for Scope 3 (e.g., we did not calculate carbon emissions from food due to issues with data collection, so this is an underestimate).
 - We ask Mason to assess and revise our green purchasing policy, and based on an ineffective prior policy, increase sustainable purchasing through awareness and engagement while ensuring accountability.
 - We recommend Mason shift our waste stream toward composting and other diversions from trash (currently > 80% of Mason's waste is burnt at a waste-to-energy facility where the remaining waste – ash – is landfilled. This would minimize toxic emissions and address environmental-justice concerns).
- **Air travel, as a standalone carbon source, comprises 9% of Mason's carbon footprint.**
 - We recommend Mason assess how to **reduce and offset the emissions of airline travel (9%)**.

EMISSIONS SOURCES

- **Scope 1:** Natural gas for heating and cooling, fleet fuel, fertilizer, and refrigerants
- **Scope 2:** Purchased electricity
- **Scope 3:** Commuting, air travel, electricity transmission & distribution (T&D) losses, wastewater, waste, and (paper) purchasing



APPENDIX: DATA NOTES & OBSERVATIONS

- **Reporting Year:** FY2019 was selected as the reporting fiscal year for our first internal GHG Inventory to align with the simultaneous submission of Mason's AASHE STARS Report (submitted every three years) and to avoid COVID-19 related data outliers from FY2020-2021.
- **Data Collection:** The support of senior leadership is essential to improve data accuracy, develop and promote relevant surveys, and ensure automation when possible to streamline data collection and improve workflow efficiencies for departments across Mason.
- **Nitrogen:** A greater emphasis on nitrogen sources will be required by UNH's SIMAP Reporting Platform in future reporting years, including food procurement.
- **Life-cycle assessments (LCA):** The LCA of goods purchased are not traditionally reflected in GHG inventory reports – essentially not reflected in an institution's emissions ledger – and are not included in this report as a result. Generally, the greatest environmental impact of goods lies in the extraction of raw materials and the manufacturing of products, not disposal. Due to Mason's tremendous economic impact as a large volume purchaser, we urge Mason to consider circularity when purchasing goods and to develop data collection and reporting methods to account for the LCA of purchased goods.
- **Environmental & Social Justice:** We urge Mason to prioritize environmental and social justice as the institution works to position itself as a sustainability leader. Just because an activity is not a significant emitter of GHGs does not mean that there are not serious environmental and social justice concerns that must be identified and addressed.