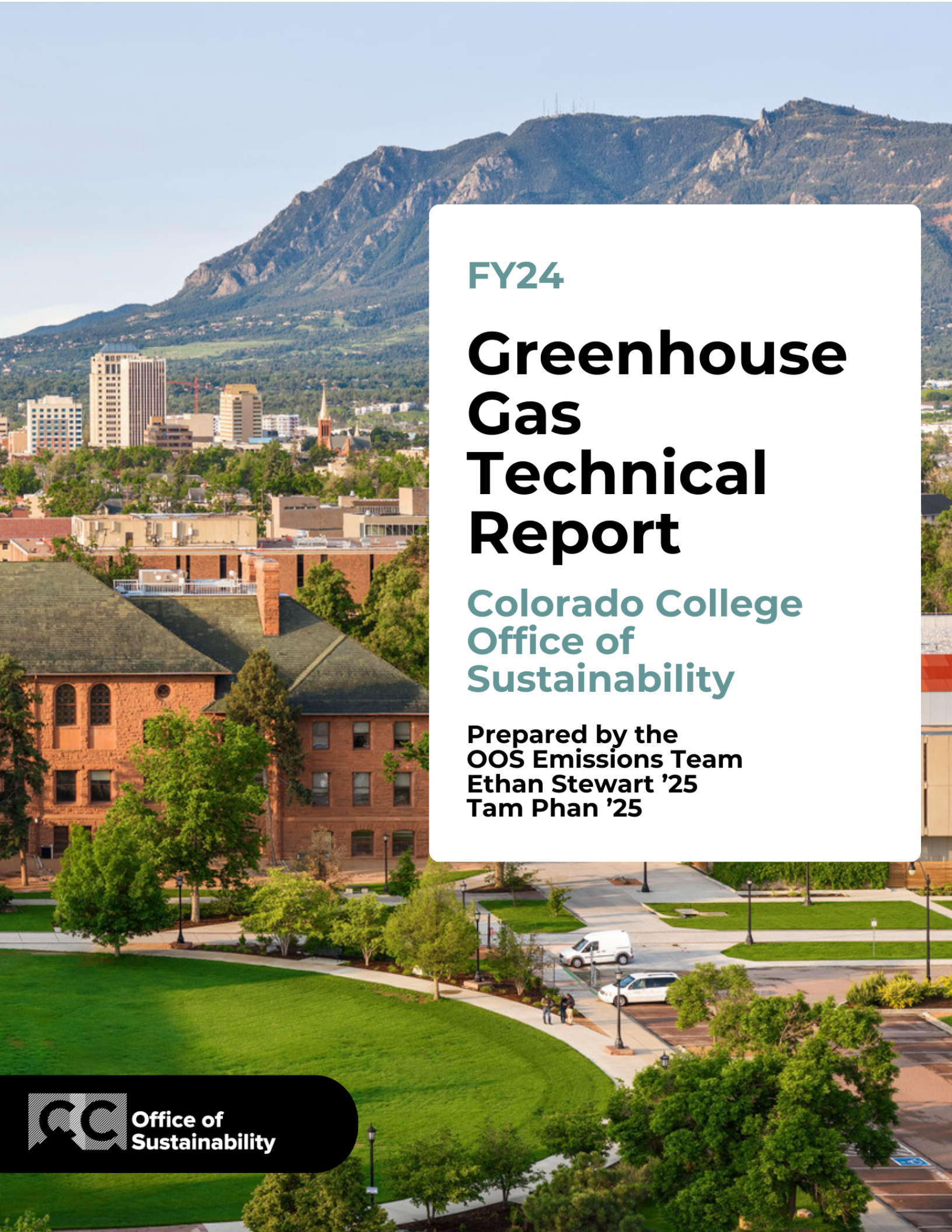

FY24

Greenhouse Gas Technical Report

Colorado College Office of Sustainability

Prepared by the
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Office of Sustainability

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Definitions and Terminology

General Terms and Industry Language

- **Greenhouse Gas Emissions (GHGs):** Greenhouse gases (GHGs) are atmospheric gases that build up and reflect radiant energy, causing heat to become trapped beneath the atmosphere. This process can lead to a rise in the Earth's average temperature. Human activities are the main cause of the increase in GHG levels and the resulting global warming. Common examples of GHGs include carbon dioxide (CO2), methane (CH4), water vapor (H2O), and nitrous oxide (N2O).

- **Greenhouse Gas Inventory:** A greenhouse gas inventory is a record that shows how much greenhouse gas is released into the air by a specific source, like a country, city, company, or person. It typically includes gases like carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). These inventories are essential for monitoring and understanding emissions and serve as a foundational step in assessing the environmental impact of a given entity.

- **Global Warming Potential (GWP):** A scale used to measure how much heat a greenhouse gas can trap in the atmosphere compared to carbon dioxide. It shows how harmful a gas can be to the climate. For instance, methane has a GWP of 28, meaning it traps 28 times more heat than carbon dioxide, and nitrous oxide has a GWP of 265. These gases have a stronger effect on global warming than carbon dioxide, according to the Intergovernmental Panel on Climate Change (IPCC). GWP values can vary across sources because they are periodically updated to reflect the latest scientific understanding of how different gases trap heat over time. These new updates may consider factors such as atmospheric lifetime, radiative efficiencies, and indirect effects. Therefore, when compiling a report, it is important to use the most current GWP values, such as those provided by the Intergovernmental Panel on Climate Change (IPCC), specifically IPCC AR6 for this year's report.

- **Carbon Neutrality or Net Zero Emissions:** A net total of zero greenhouse gas emissions. While all entities, such as people, organizations, or countries, emit some greenhouse gases, these emissions can be balanced out by reducing or removing an equal amount of emissions elsewhere (through methods such as verified carbon offsets or carbon sequestration). To credibly achieve carbon neutrality, any removals must demonstrate additionality, meaning they result in emission reductions or removals that would not have occurred without the specific intervention. This ensures that the balancing action truly offsets the emitted greenhouse gases and that the entity's activities do not lead to a net increase in atmospheric emissions.

- **Carbon Offsets:** Actions taken to lower or prevent the release of carbon dioxide (CO2) and similar gases into the atmosphere. This can be done by capturing and storing carbon in natural systems like forests and soil (called sequestration), or by changing activities to stop emissions from happening in the first place (known as avoidance). One carbon offset represents the reduction or removal of one metric ton of carbon dioxide equivalent ($MTCO_2e$).

  However, not all carbon offsets are equally effective. For an offset to truly make a difference, it needs to meet certain standards. Additionality is the idea that the offset project must lead to emissions reductions that would not have happened anyway. If a project was going to be built regardless of the offset funding, then it is not actually helping to reduce emissions beyond what was already expected.

To help identify high-quality offsets, experts often refer to the **P.A.V.E.R.** framework. This stands for **Permanence** (how long the emissions are kept out of the atmosphere), **Additionality** (whether the reductions are truly extra), **Verifiability** (whether the impact can be reliably measured and checked), **Exclusivity** (ensuring the same offset isn't claimed by more than one party), and **Realism** (whether the project is based on realistic assumptions and practices). When an offset meets all of these criteria, it's more likely to deliver real and lasting climate benefits.

Offsetting emissions can play a role in tackling climate change, but only when done carefully. Using high-quality offsets that meet these principles helps ensure that carbon neutrality claims are credible and not just a matter of accounting.

- **Renewable Energy Certificates (RECs):** RECs are used to track the use and production of renewable energy. A REC is created when a renewable energy source, like wind or solar, adds electricity to the power grid. Buying a REC means you are supporting renewable energy generation on the grid, even if the actual electricity you use comes from a mix of sources. RECs can be sold separately from the electricity itself, so you can think of them as proof that renewable energy was made and a way to support its *environmental benefits*, not the exact energy you receive.

    - **Bundled RECs:** RECs that are sold together with the actual electricity produced from renewable sources. Because the energy and the certificate stay linked, bundled RECs affect the local power grid where the energy was generated.
    - **Unbundled RECs:** RECs that are sold separately from the electricity that created them. This means the certificate can be bought by someone in a different location from where the renewable energy was actually produced. It allows people or organizations to support renewable energy, even if they are not near the source of that energy.

Emissions Scopes and Measurement Parameters

- **Scope 1 (Direct Institutional):** Under the Greenhouse Gas (GHG) Protocol, Scope 1 refers to "direct emissions", which come from sources that are owned or controlled by Colorado College. This includes emissions from fuel used in campus buildings, the college's vehicles, and any refrigerants, chemicals, or fertilizers the college uses directly.
- **Scope 2 (Indirect Institutional):** Scope 2 covers "indirect-direct emissions", which are emissions from activities that Colorado College controls, but that rely on energy bought from outside sources the college does not own or operate. These include things like purchased electricity or heat. For Colorado College, Scope 2 emissions come only from the electricity it buys.
- **Scope 3 (Indirect):** Scope 3 includes indirect emissions that come from activities related to the college but carried out by entities or organizations the college does not own or control. These emissions result from things like student and staff commuting, air travel, and purchasing decisions. According to the GHG protocol, this is a voluntary scope, but is considered good practice and most would consider an emissions report incomplete without reporting material topics in Scope 3. Reporting Scope 3 emissions from commuting and air travel sources is mandatory under Second Nature's Climate Commitment. The college also chooses to track other Scope 3 emissions, such as student travel to and from home, college-funded business travel (like third-party ground transportation), emissions from solid waste and

wastewater, office paper use, and energy losses during fuel and electricity distribution (FERA and T&D losses).

  - **FERA (Fuel and Energy Related Activities):** This refers to the emissions that occur before the energy, such as fuel, electricity, heating, or cooling, reaches the end user. These are known as upstream emissions. Transmission and distribution (T&D) losses can be counted as part of this category or reported on their own. In this report, they are listed separately, although the Greenhouse Gas Protocol groups them together under FERA (Fuel and Energy Related Activities).
  - **T&D (Transmission and Distribution) Loss:** As electricity, steam, heating, and cooling are delivered, some energy is lost along the way, and these losses are considered upstream emissions. These losses are included in Scope 3 of the greenhouse gas inventory. How T&D losses are reported can vary, since energy producers and distributors are sometimes different companies. However, because Colorado College is neither an energy producer nor distributor, this report includes T&D losses under Scope 3.

- **Fiscal Year:** An accounting period, which may not align with the standard calendar year. This report refers to Colorado College's FY24, encompassing the period from July 1, 2023, to June 30, 2024.
- **Institutional Data:** This refers to the information and records that an organization collects, manages, and uses in its operations and decision-making processes. In terms of this report, the data from Colorado College can include financial records of funded travel, solid-waste, and water-waste information, for example. This is often used to compare growth and emissions.

Units

- **Kilowatt-hour (kWh):** A measurement of power that equals the equivalent of 1000 watts used continuously for one hour. It is frequently used by electric utilities to bill consumers for the energy they use.
- **Metric Tonnes of Carbon Dioxide Equivalent ($MTCO_2e$):** The unit of measurement for GHG emissions where all regulated GHG are scaled to carbon dioxide-equivalent emissions. For example, one molecule of methane counts toward 28 carbon dioxide molecules. "Equivalent" is determined by the global warming potential (GWP).

Introduction

The Greenhouse Gas (GHG) Technical Report represents Colorado College's continued commitment to environmental accountability and transparency. First established in 2008, this annual inventory tracks the college's greenhouse gas emissions and is prepared by the Emissions Team within the Office of Sustainability. This report for fiscal year 2024 (FY24), covering the period from July 1, 2023, to June 30, 2024, details our emissions data, outlines our methodology for data collection, interprets results, and describes the use of carbon offsets. An appendix is included for full transparency and reference.

This report is not just a record of emissions data. It reflects the ongoing work led by the Office of Sustainability to reduce greenhouse gas emissions, maintain carbon neutrality (first achieved in calendar year 2020), and develop strategies for long-term climate action. The office supports campus-wide efforts to improve data transparency, guide decision-making, and ensure Colorado College continues to make meaningful progress toward its climate goals.

> ***Sustainability isn't optional at Colorado College; it's central to our community and to the examples we set through all of our work. We aspire to make Colorado College a model for sustainability at all levels - an academic community that lives its commitment to a thriving future, honoring the economic, social, and environmental narratives of our complex ecosystem.***

We understand that reaching carbon neutrality is not an end point, but part of a larger process of transformation. As such, the college continues to prioritize emissions reductions where possible, and to invest in high-quality offsets where reductions are not yet feasible.

This report follows the widely adopted framework of the GHG Protocol, the leading international standard for emissions accounting. Emissions are classified into three scopes:

- Scope 1 includes direct emissions from sources owned or controlled by the college.
- Scope 2 accounts for indirect emissions from purchased electricity.
- Scope 3 covers all other indirect emissions resulting from college-related activities that occur outside of our operational control but are influenced by our actions.

Reporting across all three scopes allows us to produce data that is consistent, comparable year-over-year, and aligned with best practices in higher education and beyond. While Scope 3 remains a voluntary category under the GHG Protocol, its inclusion is now widely recognized as necessary for any meaningful climate accountability. Colorado College's report, in accordance with Second Nature's Climate Commitment, includes mandatory Scope 3 reporting for commuting and air travel, as well as several self-elected categories such as business travel, student travel, solid waste, wastewater, and upstream emissions from paper use and energy distribution.

Through this work, Colorado College continues striving to be a model for sustainability in higher education, both in words and in action. This report not only serves as a technical disclosure, but as a reflection of our ongoing effort to align operational practices with our institutional values and to foster a more ethical, resilient, and sustainable future.

Data Collection and Methodology

Colorado College initiated its Greenhouse Gas (GHG) Inventory in 2008 as part of its commitment to environmental accountability and long-term sustainability. Since then, the process has become more comprehensive year after year by refining methodologies, expanding the scope of data collection, and improving accuracy in areas historically difficult to quantify. For the FY24 report, the inventory was conducted by the Office of Sustainability's Emissions Team, which consisted of two student interns. Data collection for FY24 began in August 2024.

The primary sources of data include institutional purchasing records and internal operational documents maintained by the college. These records form the foundation for most emissions calculations and are obtained through direct coordination with relevant faculty and staff. For data not captured in official records, particularly related to student traveling home and faculty/staff commuting, the team distributes targeted surveys to fill in the gaps.

Once collected, the data is entered into SIMAP (Sustainability Indicator Management and Analysis Platform), a widely used emissions tracking tool developed by the University of New Hampshire. SIMAP is the standard platform for higher education institutions engaged in emissions accounting and aligns with the Greenhouse Gas Protocol, the internationally recognized framework for carbon reporting. It also incorporates regularly updated emissions factors based on the latest scientific guidance from the United Nations Intergovernmental Panel on Climate Change (IPCC), ensuring methodological alignment with current global climate research. All emissions are measured in metric tonnes of carbon dioxide equivalent ($MTCO_2e$), which accounts for the relative warming impact of different greenhouse gases.

SIMAP
SUSTAINABILITY INDICATOR MANAGEMENT & ANALYSIS PLATFORM

In addition to emissions data, the inventory process also involves tracking a variety of contextual variables that help normalize emissions across time. These include key institutional metrics such as campus population (including faculty, staff, students, and housing distribution), operating budgets, and changes to physical infrastructure (e.g., new construction or acquisitions that alter gross square footage). This broader context allows the college to account for operational growth when interpreting emissions trends. For example, an increase in emissions may not necessarily signal a setback if it is associated with expanded facilities or a higher campus population. Normalizing data in this way helps isolate the effects of sustainability interventions from those of institutional expansion.

The Emissions Team also plays a critical role in data verification, comparing current-year results to previous inventories to check for anomalies, trends, and reporting consistency. This iterative process ensures the reliability and accuracy of the final report, and supports the college's ability to make informed, data-driven decisions as it continues working toward its long-term climate goals.

FY24 Emissions Summary

CO2 CH4 N20 HFCs PFCs SF6

Total Emissions: 25,602.42 MTCO2e

Scope 2 (Indirect-Direct) 0 MTCO2e
Purchased electricity

Scope 1 (Direct) 7,230.48 MTCO2e
Stationary Fuels
Direct Transport
Refrigerants and Chemicals
Fertilizer

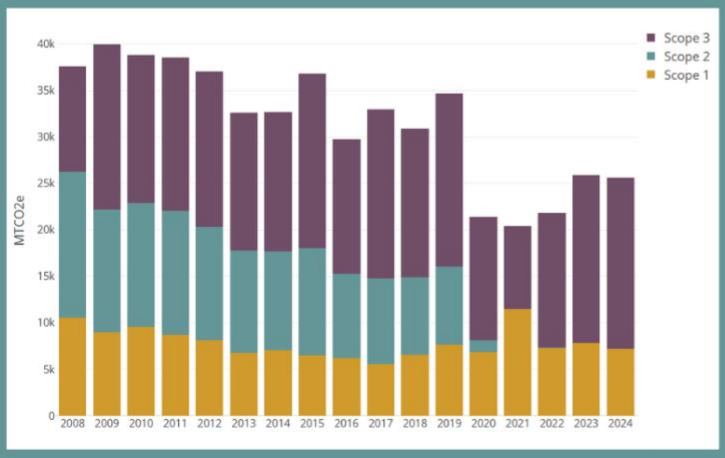
Scope 3 (Indirect) 18,091.34 MTCO2e
T&D losses
Financed air travel and study abroad
FERA emissions
Faculty, staff, and student commuting
Paper purchasing

Scope 3 (Indirect) 280.60 MTCO2e
Wastewater
Solid waste

COLORADO COLLEGE

Upstream Activities | Colorado College | Downstream Activities

CC's Emissions by Scope 2008-2024



25,602.42 MTCO2e (total) - 25,602.42 MTCO2e (offset) = Net Zero Emissions

100% of CC's emissions are offset by the Larimer County Landfill Gas Destruction Project

Institutional Goals

- Reduce Scope 1 emissions by an additional **25%** from the 2008 baseline by 2030
- Reduce Scope 3 emissions by an additional **25%** from 2008 levels by 2027
- Work towards setting 2020 as a new baseline year and investigate the feasibility of a **50%** reduction in 2020's emissions levels by 2035

Results | Scope 1

Under the Greenhouse Gas Protocol, Scope 1 refers to "direct emissions", which come from sources that are owned or controlled by Colorado College. This includes emissions from fuel used in campus buildings, the college's vehicles, and any refrigerants, chemicals, or fertilizers the college uses directly.

Scope 1 encapsulates all carbon emissions directly produced by Colorado College in its day-to-day operations. This includes fuel use on campus for both stationary and transportation-related purposes, refrigerant and chemical use by campus facilities, and fertilizer use for groundskeeping activities. Aggregate Scope 1 emissions were determined to be 7,230.48 $MTCO_2e$ in FY24. This represented a decrease compared to previous benchmarks, with observed reductions of 7.9% compared to FY23 and of 31.5% compared to our baseline year of FY08.

EMISSIONS CATEGORY	$MTCO_2e$
On-Campus Stationary Sources: (Distillate Oil (#1-4), LPG, and Natural Gas)	6,656.26
University Fleet (Diesel, Gasoline, and Propane)	312.71
Refrigerants and Chemicals (R-134a, R404a, R-22, R-407, and R-410a)	256.53
Synthetic Fertilizer	4.98

Table 1: Categories of Scope 1 Emissions and their total emissions value including carbon dioxide, methane, and nitrogen compounds into metric tonnes of carbon dioxide equivalent.

The primary contributing factor to the decrease in Scope 1 emissions from FY23 to FY24 was the 11.6% decrease in on-campus stationary fuel use, the largest source of Scope 1 emissions. Slight reductions in the use of natural gas and propane across the Colorado College campus and Baca campus as well as distillate oil usage in the on-campus central heating plant decreased emissions in this category. Emissions from the heating plant are primarily from tests of emergency heating systems with fossil fuels that have a limited shelf life.

Meanwhile, less significant sources of Scope 1 emissions increased from FY23 to FY24 apart from fertilizer use. Transportation-related emissions from Colorado College's vehicle fleet increased by 16.2%, indicating a slight increase in travel by the campus community. Furthermore, refrigerant and chemical use increased by 502.9%. Although this is a large relative increase from FY23 to FY24, compared to FY19-FY21, FY24 refrigerant and chemical emissions have decreased and consistently remain a very small proportion of overall Scope 1 emissions. Refrigerants and chemicals typically have a high global warming potential, meaning slight variations in usage levels result in highly variable emissions year-to-year. This is particularly true in the case of a leakage, one of the largest emissions sources in FY21.

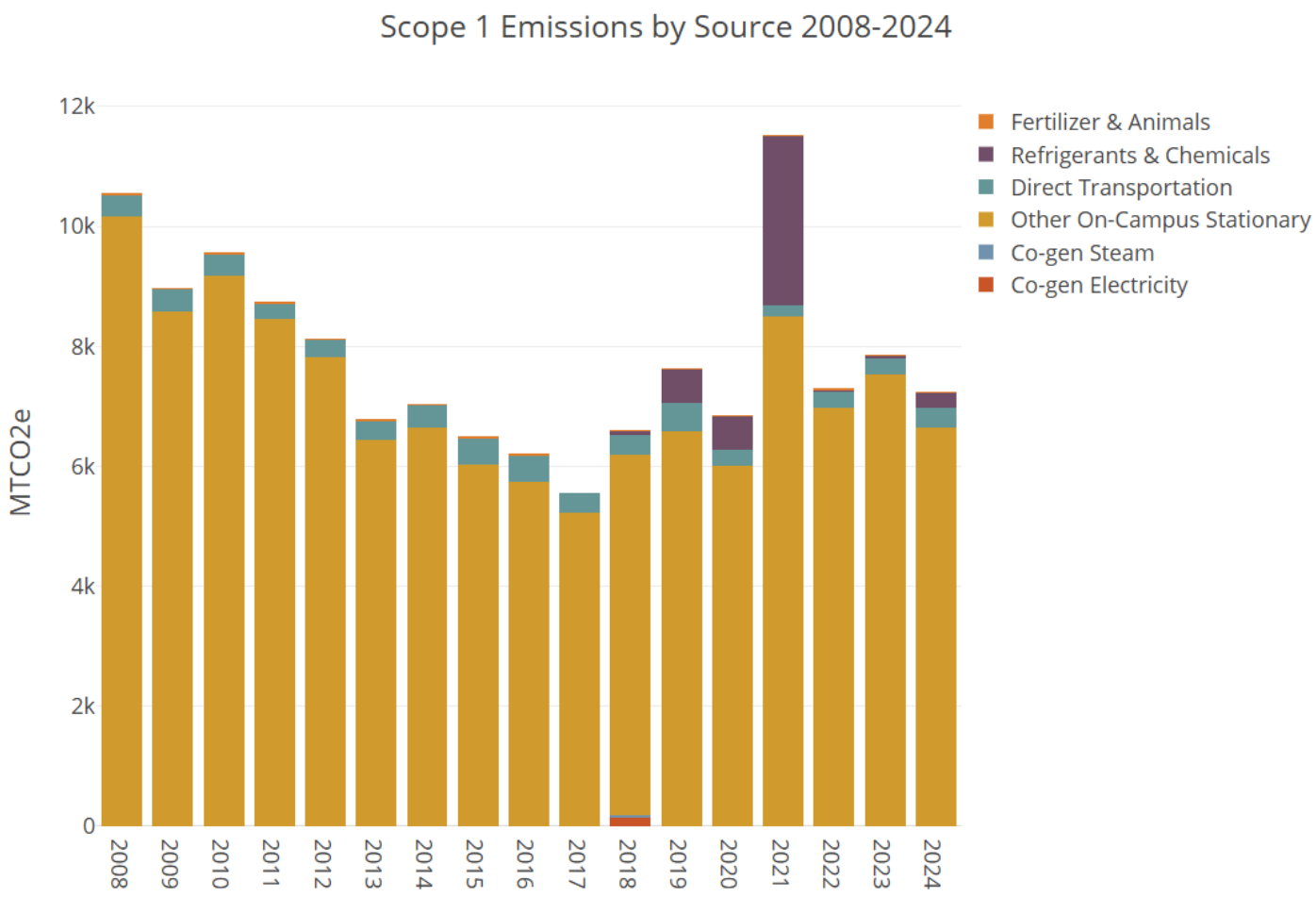


Figure 1: Total Scope 1 emissions from FY08 to FY24

Figure 1 depicts Colorado College's Scope 1 emissions broken down by individual sources from 2008 to 2024. Following the gradual decline of Scope 1 emissions from 2008-2017, Scope 1 emissions have not obeyed an observable trend. Large variations in stationary fuel emissions and refrigerant and chemical emissions have occurred from 2018-2024, underscoring the importance of implementing clear annual reductions goals to achieve our 2030 Scope 1 emissions reduction target.

Results | Scope 2

Scope 2 encapsulates "indirect-direct emissions," which are emissions from activities that Colorado College controls, but that rely on energy bought from outside sources the college does not own or operate. This includes things like purchased electricity or heat. For Colorado College, Scope 2 emissions come only from the electricity it buys.

Scope 2 emissions are determined based on an institution's purchased electricity. For Colorado College, electricity usage is accounted for at the main CC campus, the CC Cabin and Baca campus across three different utility companies or providers. Most electricity is purchased for the main Colorado College campus from Colorado Springs Utilities. In FY24, approximately 18,804,407 kWh of electricity was consumed across these three campuses, representing a 5.7% decrease from the 19,930,630 kWh of electricity consumed in FY23. Slight annual fluctuations of this nature in electricity usage are expected and do not indicate significant shifts in campus operations.

FY24 represents the fourth year in which CC's Scope 2 emissions are zero (excluding a slight irregularity in FY22) due to the purchase of Renewable Energy Certificates (RECs). Although electricity from the grid is generated by a combination of both renewable and nonrenewable energy sources, RECs allow for ownership to be assigned to renewable energy sources specifically in any shared grid. CC purchases RECs equivalent to its usage, thus ensuring the entirety of the electricity utilized on campus is matched by local renewable energy generation (primarily solar) and produces zero emissions. As a direct result, CC's electricity expenditure also directly supports local green economic development and renewable energy, further upholding its sustainability commitments. All CC RECs are audited and verified by Green-e, a third-party clean energy certification program. Figure 2 illustrates how RECs play a role in electricity grids.

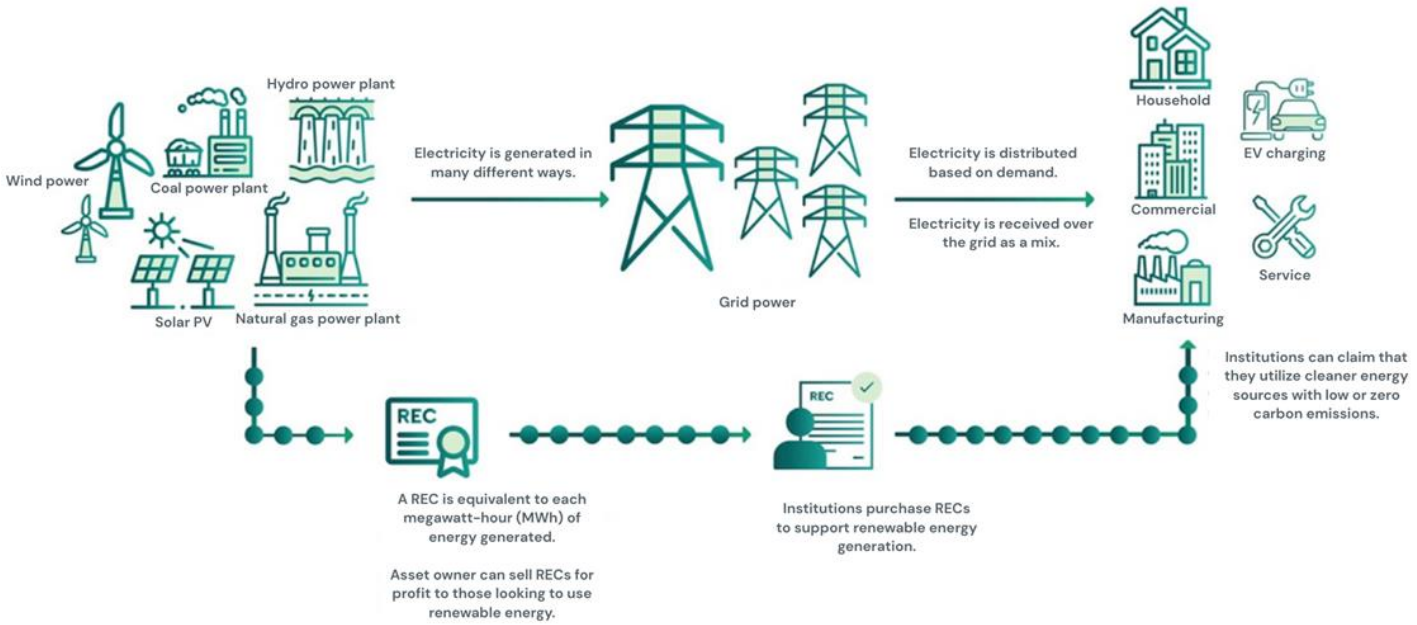


Figure 2: Image courtesy of Saxon Renewables: Institutional electric supply decarbonization through Renewable Energy Certificates (2024).

Most of Colorado College's RECs are bundled or purchased alongside electricity from Colorado Springs Utilities. However, to ensure the electricity utilized by the CC satellite campuses produces net zero emissions, the college assigns unbundled RECs received from ownership in local solar gardens to the CC Cabin and Baca campus. A few properties adjacent to campus have also been assigned unbundled RECs as they are not currently eligible for bundled RECs due to limits on their availability.

Although a small percentage (<5%) of Colorado College's power is generated from its various on-campus solar infrastructure, monitoring systems remain inoperative. As a result, an accurate inventory of electricity generated from on-campus solar sources is not feasible and is therefore not included in this report. Looking forward, repairing these monitoring systems and increasing on-solar production are important goals for Scope 2.

Figure 3: Photo courtesy of Colorado Springs Utilities: Pike Solar Array south of Colorado Springs (2023).

Results | Scope 3

Scope 3 includes indirect emissions that come from activities related to the college but carried out by people or organizations the college does not own or control. These emissions result from things like student and staff commuting, air travel, and purchasing decisions. According to the GHG protocol, this is a voluntary scope, but is considered good practice and most would consider an emissions report incomplete without reporting material topics in Scope 3. Reporting Scope 3 emissions from commuting and air travel sources is mandatory under Second Nature's Climate Commitment. The college also chooses to track other Scope 3 emissions, such as student travel to and from home, college-funded business travel (like third-party ground transportation), emissions from solid waste and wastewater, office paper use, and energy losses during fuel and electricity distribution (FERA and T&D losses).

EMISSIONS CATEGORY	$MTCO_2e$
Commuting	154.34 (faculty) 646.01 (staff)
Air Travel - Business	5,290.81
Air Travel - Study Abroad Programs	3,020.25
Student Travel to and from Home	4,262.11
College-Funded Car Travel / Other Directly Financed Travel	1,469.06
Solid Waste	230.58
Wastewater	50.02
Paper Purchasing	42.00
T&D Losses	521.81
FERA	2,684.94

Table 2: Categories of Scope 3 Emissions and their total emissions value including carbon dioxide, methane, and nitrogen compounds into metric tonnes of carbon dioxide equivalent.

For FY24, Colorado College's Scope 3 emissions totaled 18,371.94 $MTCO_2e$, representing a 1.89% increase from the previous year (FY23: 18,031.54 $MTCO_2e$). While FY24 shows a minor increase in Scope 3 emissions compared to FY23, it is not the first time the college has surpassed the 18,000 $MTCO_2e$ threshold. As shown in Figure 4, emissions levels in FY24 remain slightly below previous peak years, such as FY15 (18,793.10 $MTCO_2e$) and FY19 (18,617.62 $MTCO_2e$). FY19, which covered the period from July 1, 2018, to June 30, 2019, represents a high point in the pre-pandemic COVID-19 era. When viewed in a longer-term context, however, Scope 3 emissions have increased by 61.39% since the baseline year of FY08 (11,383.78 $MTCO_2e$), largely due to expanded tracking efforts, growth in campus operations, and improved data accuracy.

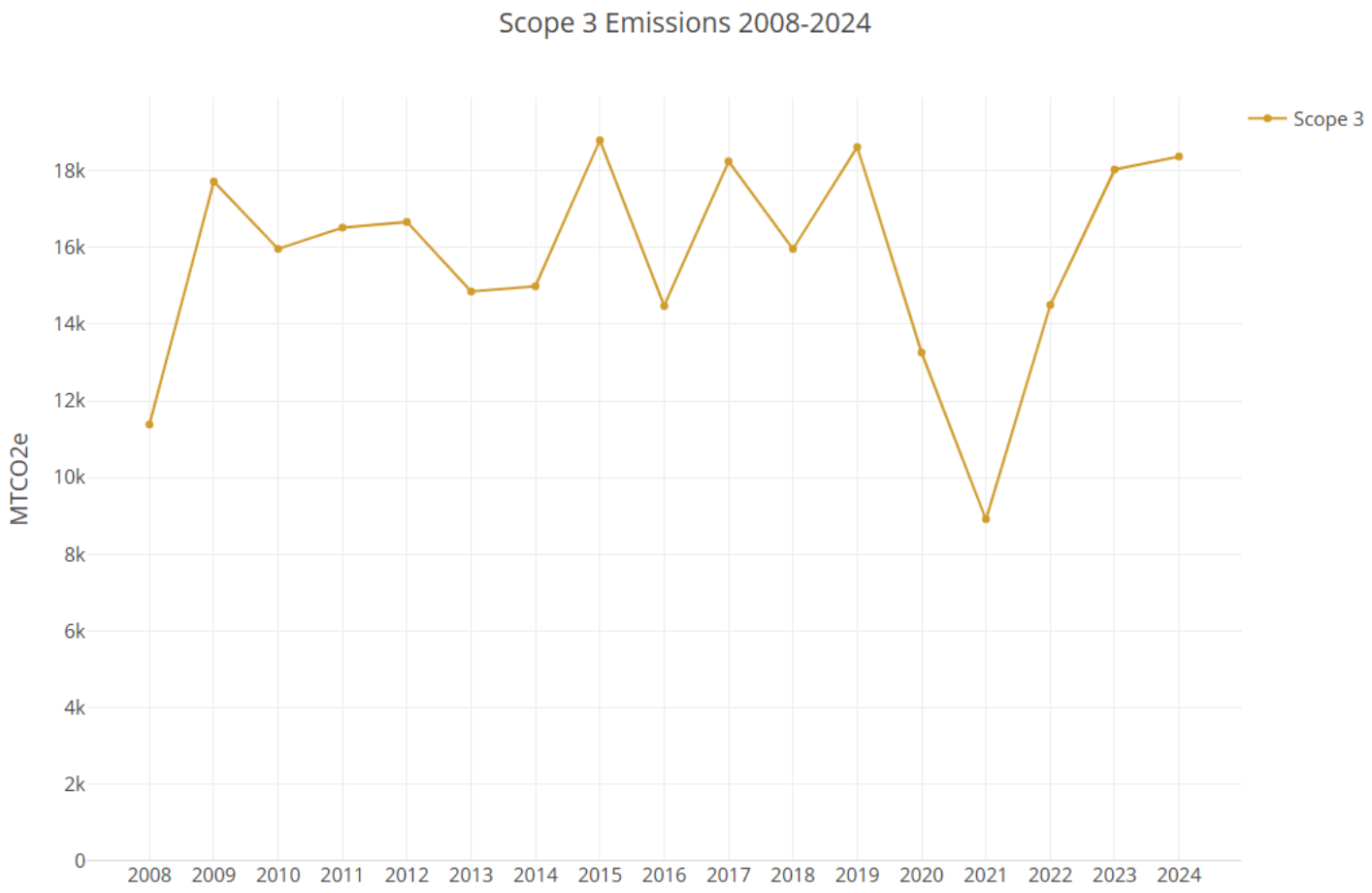


Figure 4: Total Scope 3 emissions from FY08 to FY24

Several key sources of Scope 3 emissions experienced noticeable increases in FY24 compared to FY23. Study Abroad Programs rose by 17.07%, from 2,579.87 $MTCO_2e$ in FY23 to 3,020.25 $MTCO_2e$ in FY24. This upward trend is consistent with Colorado College's strong culture of international education. Many study abroad programs, particularly those affiliated with the Global Education and Field Study Office, involve full-class participation and long-distance travel to destinations across Europe, Asia, and other regions. Increased program offerings, sustained funding, and financial aid accessibility have likely contributed to this rise.

Student Travel to and from Home also shown a 15.27% increase, growing from 3,697.54 $MTCO_2e$ in FY23 to 4,262.11 $MTCO_2e$ in FY24. This change can be partially attributed to improved data collection practices. In the FY23 student travel survey, many respondents reported one-way travel only, leading to the need for broad assumptions in the emissions calculation process (e.g., doubling one-way figures). In contrast, the FY24 survey

was redesigned to more explicitly ask students for round-trip travel information, resulting in more accurate, but also higher, reported emissions.

Commuting Emissions from faculty and staff increased significantly by 74.24% overall compared to FY23. Faculty commuting rose from 60.18 $MTCO_2e$ to 154.34 $MTCO_2e$, while staff commuting increased from 399.16 $MTCO_2e$ to 646.01 $MTCO_2e$. This rise may be partially attributed to the data collection of this year, which captured a broader range of commuting behaviors, including responses from individuals living farther from campus, such as in Denver or other outlying areas. As a result, the emissions impact of longer-distance commutes was more fully accounted for, contributing to the overall increase in reported commuting emissions.

Finally, Solid Waste emissions increased moderately by 4.89%, from 219.82 $MTCO_2e$ in FY23 to 230.58 $MTCO_2e$ in FY24.

While some categories saw growth, others declined when comparing FY24 to FY23. Business Air Travel decreased by 9.72% (from 5,860.27 $MTCO_2e$ to 5,290.81 $MTCO_2e$). College-Funded Car Travel emissions (due to non-fleet vehicles) dropped 3.83%, from 1,527.57 $MTCO_2e$ to 1,469.06 $MTCO_2e$. Wastewater emissions decreased by 10.49%, and paper usage by 2.12%, all small but steady improvements.

FERA (Fuel and Energy Related Activities) refers to the emissions that occur before the energy, such as fuel, electricity, heating, or cooling, reaches the end user. These are known as upstream emissions. T&D (Transmission and Distribution) Loss can be counted as part of this category or reported on their own. In this report, they are listed separately, although the Greenhouse Gas Protocol groups them together under FERA. How T&D losses are reported can vary, since energy producers and distributors are sometimes different companies. However, because Colorado College is neither an energy producer nor distributor, this report includes T&D losses under Scope 3. Compared to FY23, FERA saw an 11.54% reduction, while T&D losses decreased by 5.65% in FY24.

Results | Data Visualization

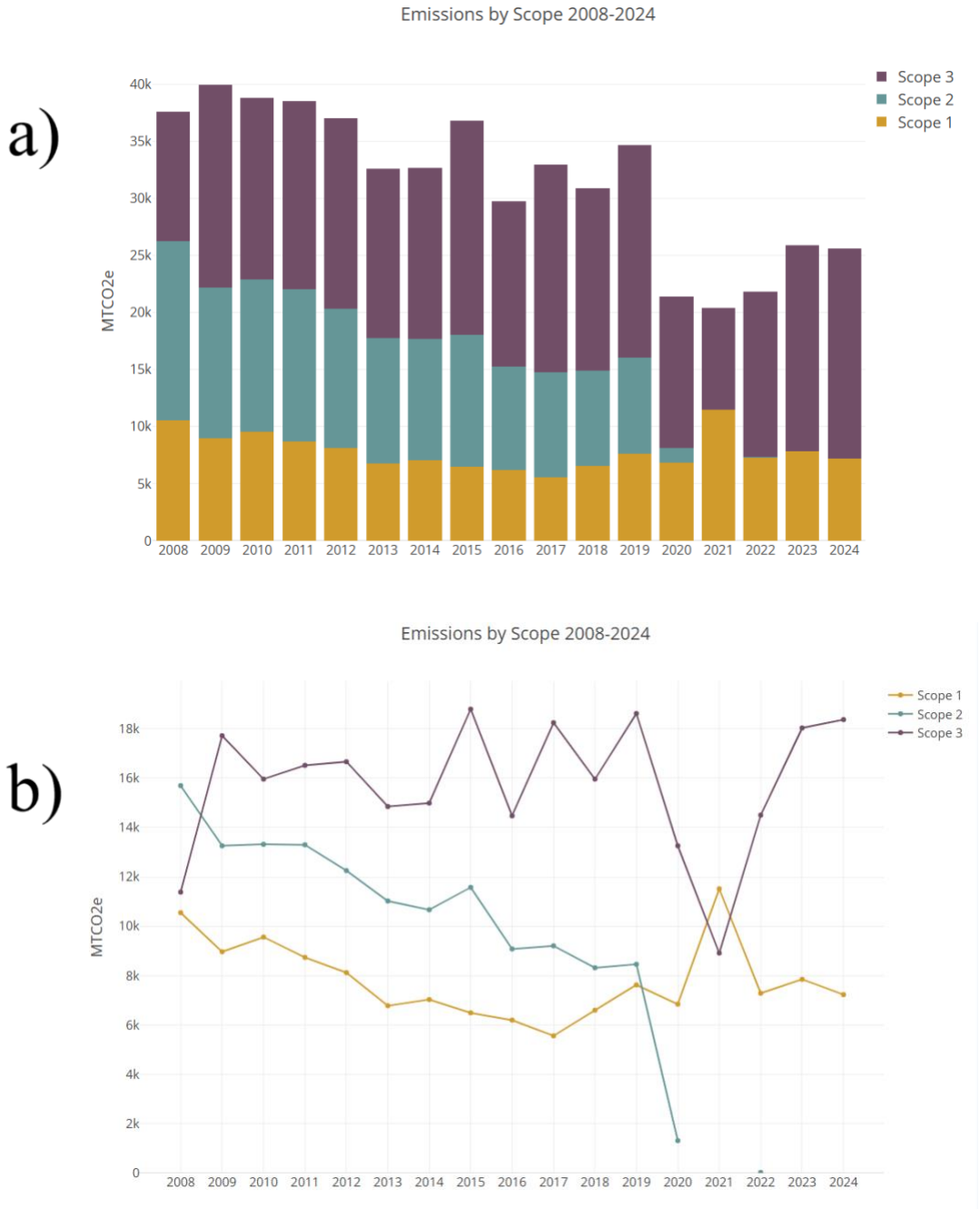


Figure 5: CC's carbon emissions broken down by scope from FY08 to FY24. Graph 5A depicts contributions of each scope to aggregate gross emissions while graph 5B depicts fluctuations in individual scopes over time.

Figure 5 above depicts Colorado College's Scope 1, Scope 2, and Scope 3 emissions from the baseline year of 2008 to the current inventory year of 2024. Notable variations across these graphs include the introduction of RECs in 2020, which significantly decreased and eventually eliminated Scope 2 emissions, the COVID-19 pandemic in 2021, which significantly reduced Scope 3 emissions, and an isolated refrigerant leak in 2021, which significantly increased Scope 1 emissions. Apart from these events, Scopes 1 and 3 emissions in FY23 and FY24 have closely aligned with previous years.

Results | Data Visualization

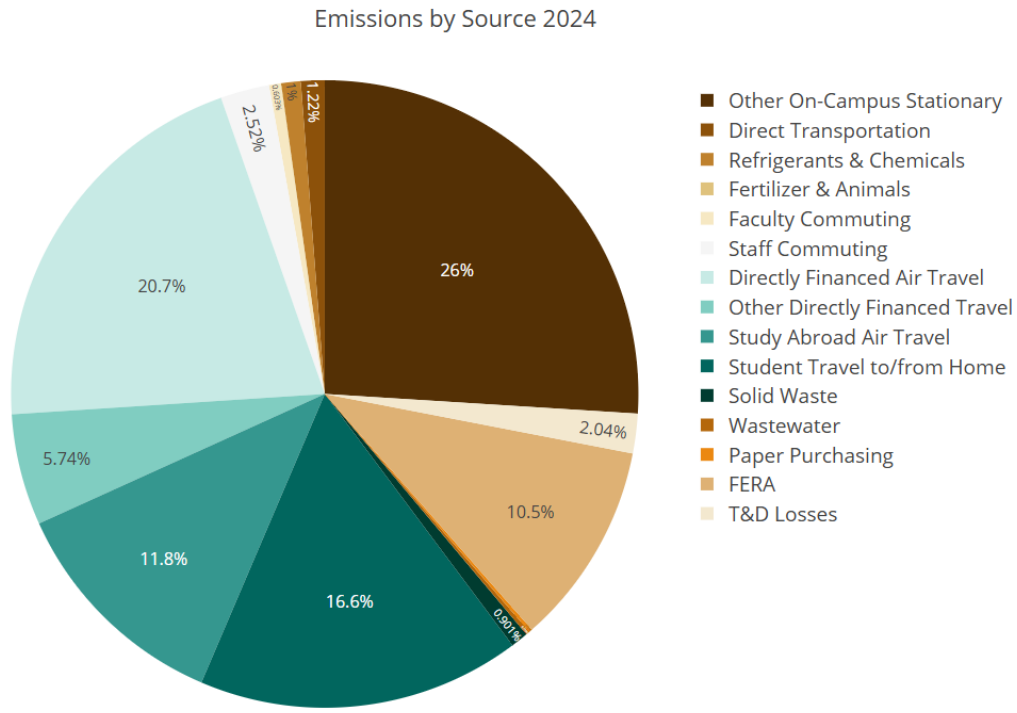


Figure 6: CC's FY24 carbon emissions broken down by source. To help visualize the respective contributions of each emissions source to CC's aggregate emissions, the figure above provides a pie-chart of our emission sources in 2024.

Figure 6 above depicts each of the individual emissions sources included in Colorado College's FY24 greenhouse gas inventory. The largest source of emissions since the purchasing of RECs eliminated all Scope 2 emissions remains on-campus stationary fuel use (Scope 1). Directly financed air travel, student travel to and from home, study abroad air travel, and FERA emissions (all Scope 3) constitute the second through fifth largest categories, respectively. Targeting these emissions sources should be a priority for future emissions reductions. Figure 7 illustrates how the contributions of each emissions source have fluctuated since the baseline year.

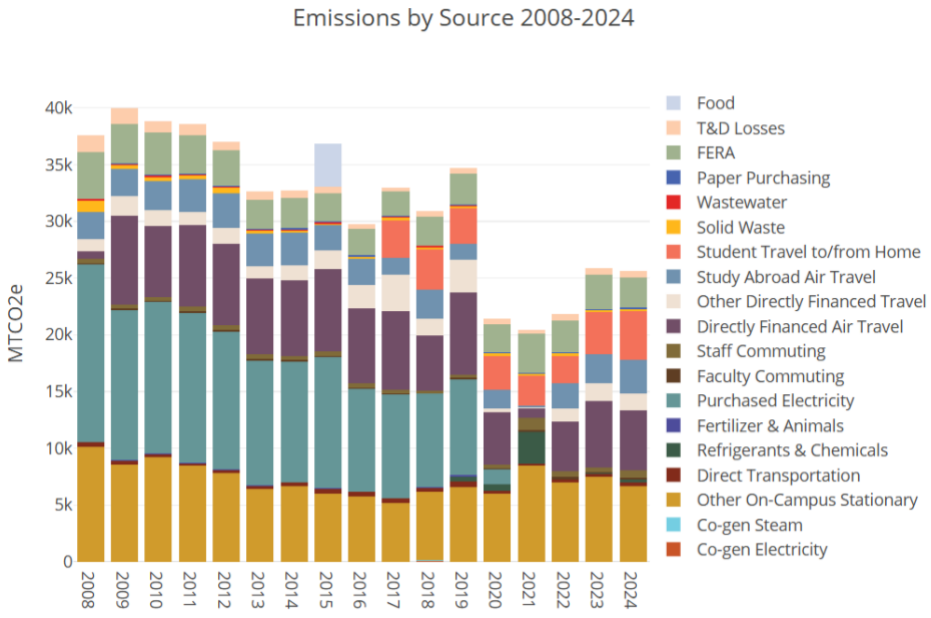


Figure 7: Carbon emissions broken down by source from FY08 to FY24

Results | Gross Emissions

In examining the trends of Colorado College's gross emissions, institutional efforts to gradually decrease emissions from baseline levels continue to be successful. Although higher emissions levels were observed in FY23 and FY24 compared to FY20-FY22, reflecting the return to normal behavior after COVID-19, FY24 data suggests that a downward trend compared to 2008 levels continues to occur. By continuing to commit to carbon neutrality through offsetting gross carbon emissions and efforts to meet emissions reduction goals, CC strengthens its institutional prioritization of sustainability.

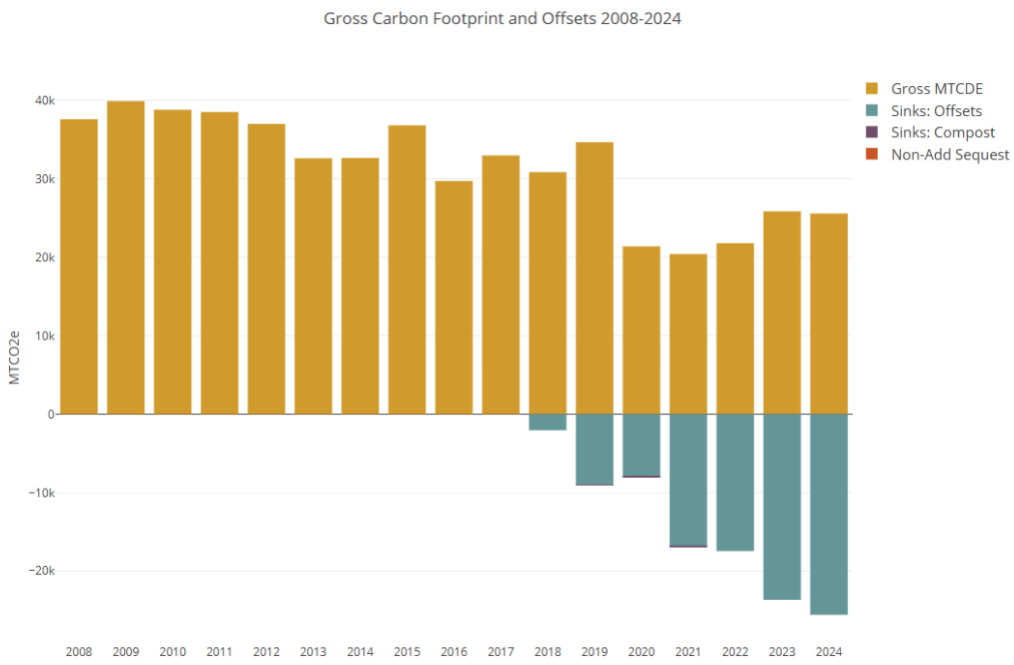


Figure 8: Colorado College's gross emissions and offsets 2008-2024

Throughout the 2008-2024 period, the college's gross emissions across all three scopes have been reduced by 32.0%. As a result, gross emissions per student have been reduced from approximately 18.3 $MTCO_2e$ to 11.8 $MTCO_2e$. This reduction has coincided with an increase of approximately 13.2% in physical spaces on campus, meaning that emissions per square foot have decreased by 38.9%. This indicates that CC has been well able to balance its goals of continued growth and emissions reductions.

This year's emissions data also reflects that a decreasing trend in emissions from pre-COVID levels is occurring. Although FY24 gross emissions are 19.5% higher than FY20 gross emissions due to post-COVID recovery, they are 1.1% lower than FY23 gross emissions and 26.2% lower than FY19 gross emissions. This is further supported by the gross emissions and offset trends depicted in Figure 8.

Furthermore, emissions more directly associated with campus operations (scopes 1 and 2) have been reduced by 72.4% and indirect Scope 3 emissions have increased by 61.4%. This major discrepancy in emissions changes indicates that the efforts of emissions reduction-related institutional policy should be aimed primarily at Scope 3 emissions sources. However, it is also indicative of the significant additions that have been made to the calculation of Scope 3 emissions in the greenhouse gas inventory after 2008, including student travel to and from home and financed air travel. Although the GHG Protocol advises the establishment of a new base year with inclusion of new sources, CC has chosen to maintain 2008 as a base year for the time being to increase transparency and address these sources as part of its climate action commitments. However, given the planned establishment of new emissions reduction goals and new source inclusions such as FERA, a new base year for the college will likely be established soon.

Results | Limitations of Data and Disclosure

The Office of Sustainability is committed to providing transparent, accessible, and accurate data on Colorado College's environmental impact. While great care is taken in the annual greenhouse gas (GHG) inventory process, particularly in Scope 3 reporting, it is important to acknowledge areas of uncertainty, the assumptions involved, and the limitations of the data. This report has not been reviewed by a third-party auditor but is evaluated internally by the Director of Strategic Initiatives & Sustainability, who specializes in carbon accounting, and the Office of Sustainability Coordinator. All data can be publicly viewed through SIMAP's and Second Nature's public reporting feature.

Much of Scope 3 data, especially for commuting and student travel, is collected through surveys. The Staff and Faculty Commuting Survey and the Student Travel To and From Home[1] Survey are conducted using Qualtrics and distributed through various channels: mass emails via the Sustainability newsletter, academic departments' Listservs, poster campaigns with QR codes, tabling events, and informal group chats (e.g., GroupMe, Microsoft Teams). Despite our outreach efforts, survey participation remains a consistent challenge. One major factor is the time commitment required. Unlike a quick multiple-choice form, the student travel survey, for example, asks respondents to estimate their potential round-trip travel plans for the entire academic year. This often requires students to anticipate future trips home and back to campus, which can be difficult to predict for some students.

Overall, the engagement for Staff and Faculty survey and Student survey remains low. Real data helps illustrate the ongoing challenge of survey participation. In FY24, Colorado College enrolled approximately 2,173 students, yet only 155 students fully completed the student travel survey. Similarly, out of a combined total of 791 faculty and staff members, only 134 responses were recorded for the commuting survey. These figures reflect the relatively low engagement that continues to limit the representativeness of our survey samples.

Another issue that complicates survey data collection is the presence of bot activity. While Qualtrics includes basic protections to detect and filter non-human responses, some bots still manage to bypass these systems and submit false entries. This introduces discrepancies between the number of responses recorded and the number of legitimate responses that can actually be used. As a result, every survey response must be manually reviewed and verified to ensure that the results reflect accurate, human-provided information and can be trusted in the overall emissions calculation. Additionally, incomplete entries and responses from individuals not affiliated with the college are removed during this process.

In FY23, issues with survey clarity led many students to report only one-way travel when estimating their trips between campus and home. To account for this, we determined the best solution was to double many of the one-way responses, which is an assumption that added uncertainty to the final emissions estimates. In FY24, the survey was updated to include clearer instructions and examples, explicitly asking respondents to report round-trip travel. These improvements have likely increased the accuracy of student travel data, but they also complicate year-to-year comparisons.

[1] Because Colorado College is a residential campus, the majority of students live on or near campus. As such, student commuting to and from class is considered insignificant and is excluded from Scope 3 reporting. Instead, student travel between campus and home (typically for breaks or holidays) is tracked, as it represents a more substantial emissions source.

Several Scope 3 categories are tracked based on financial data rather than direct activity data. For example, air travel for faculty and staff is measured using expenditures. SIMAP converts dollar amounts to emissions using internal factors derived from the Bureau of Transportation Statistics, with the most current available value being from 2019: $18.88 per mile. However, this method can introduce limitations, as it relies on financial transactions as a proxy for actual miles traveled. Variations in airfare pricing, flight routes, and class of travel may not be fully captured by this approach. Additionally, the use of outdated cost factors, such as the 2019 value, can further limit the accuracy of emissions calculations.

Ground travel, including mileage reimbursements, taxis, rental cars, is also tracked in dollars via accounts payable. SIMAP estimates emissions by converting costs into passenger miles. This is done using the Environmental Protection Agency (EPA)'s fuel efficiency standards and the Energy Information Administration (EIA)'s average gas prices. For FY24, the average fuel efficiency estimate is 22.8 miles per gallon, based on 2022 data published in 2024. The average gas price used is $3.294 per gallon, based on the 2024 EIA estimate for all fuel grades. This is the same conversion method used in the previous year to allow for consistency in the report.

Colorado Springs Utilities calculates wastewater based on potable water consumption, assuming that 86% of water used becomes wastewater. This assumption is also applied in our emissions inventory when estimating emissions related to wastewater treatment.

Finally, as of June 2024, SIMAP updated its emissions factors to reflect the latest understanding of global warming potential for key greenhouse gases. This update aligns with current climate science but makes prior reports, especially those using earlier versions of emissions factors, less directly comparable.

Results | FERA Disclosure

***FERA (Fuel and Energy Related Activities)** refers to the emissions that occur before the energy, such as fuel, electricity, heating, or cooling, reaches the end user. These are known as upstream emissions. Transmission and distribution (T&D) losses can be counted as part of this category or reported on their own. In this report, they are listed separately, although the Greenhouse Gas Protocol groups them together under FERA (Fuel and Energy Related Activities).*

FERA is a recent addition to the college's GHG inventory. FERA has always been an existing emission, but the capacity to include it in the inventory has only been available for FY23 and FY24 FERA comes from upstream activities associated with the production, processing, and transportation of fossil fuels. Emissions in this category are calculated based on the Scope 1 direct combustion of fuels or energy generation. Figure 9 illustrates the FERA emissions from fuel oil, which produces Scope 1 stationary fuel emissions, where the upstream Scope 3 emissions include oil production and upgrading, oil transport, refining, and refined product transport.

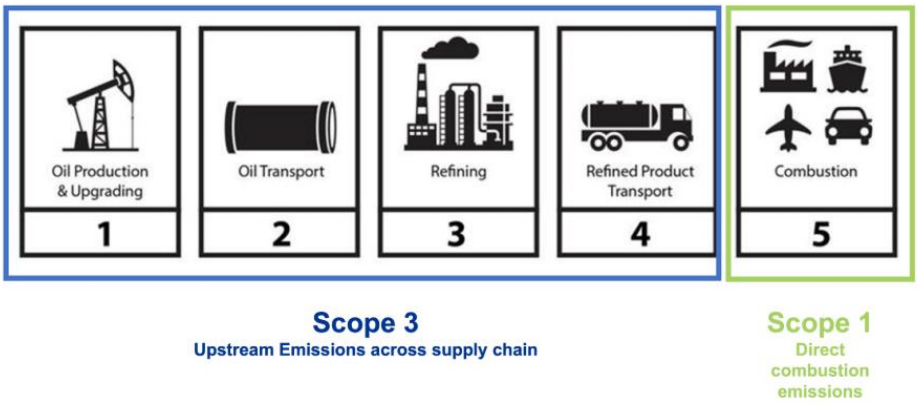


Figure 9: Image courtesy of SIMAP: Scope 3 FERA emissions upstream of Scope 1 emissions

As it is calculated based on Scope 1 emissions, FERA can be retroactively calculated. Figure 10 depicts the annual changes in both FERA and T&D losses from 2008-2024 based on these retroactive calculations. Until a new baseline year is established as suggested by the GHG Protocol when new emissions sources are reported, FERA and T&D will be reported separately to promote transparency. This is particularly important given the substantial contribution of FERA to aggregate emissions. FY24 FERA emissions were greater than 2,500 $MTCO_2e$, the fifth highest emissions source overall. Because FERA is being added retroactively to ALL years, that means additional offsets will be used to offset from January 1st, 2020, to the current year. Colorado College will still maintain its carbon neutrality even with this change.

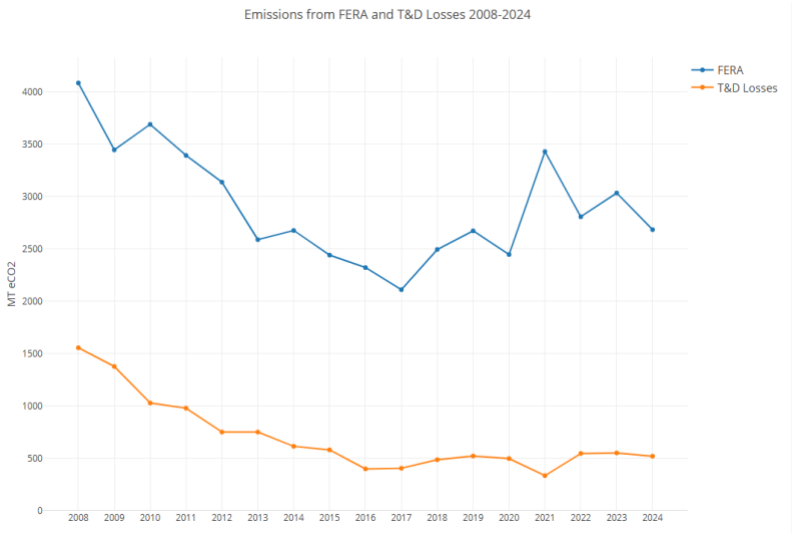


Figure 10: FERA and T&D emissions calculated for 2008-2024

Results | Changes from Last Year

Emissions Trends

- Aggregate emissions decreased slightly from FY24 to FY23 with no major fluctuations.
- Overall gross emissions for FY24 are 17.4% higher than in FY22 and 1.1% lower than in FY23.
- The most significant contributing factor to this slight decrease was the reduction in on-campus stationary fuel use and associated reductions in FERA emissions, as most individual Scope 3 sources increased.

Budget Changes

- The overall college budget increased significantly by about $10.7 million since FY23, or about $6.5 million when adjusted for inflation

Student Population

- The student population in FY23 was 2,203 enrolled students with 1,750 students living on campus.
- For FY24, the college student population is 2,173 students with 1,568 students living on campus.
- The student population decreased by about 1.4% while the residential population decreased by about 10.4%. These slight declines in student population and residency could have played a slight role in overall emissions reductions.

Construction Projects

- The college completed construction of new art studios where the former Honnen Ice Arena resides, which added roughly 4,600 additional square feet to the campus.

SIMAP Emissions Accounting

- In July 2024, SIMAP updated their Global Warming Potential (GWP) for most greenhouse gases to reflect improved scientific understanding and changes in atmospheric composition, and in January 2025, SIMAP released new emissions factors.
- Both updates resulted in several retroactive recalculations of emissions in previous years.

Carbon Offsets

***Carbon Offsets** refers to the actions taken to lower or prevent the release of carbon dioxide (CO2) and similar gases into the atmosphere. This can be done by capturing and storing carbon in natural systems like forests and soil (called sequestration), or by changing activities to stop emissions from happening in the first place (known as avoidance). One carbon offset represents the reduction or removal of one metric ton of carbon dioxide equivalent ($MTCO_2e$).*

Colorado College officially achieved carbon neutrality in 2020. However, neutrality does not imply that the college no longer emits greenhouse gases. Rather, it means that any emissions from campus operations that cannot currently be eliminated are balanced out through verified carbon offsets. Reaching neutrality is not the end of the work, it is an ongoing process that requires adaptation and continued investment in emissions reductions wherever possible.

The college remains committed to reducing emissions directly but faces a number of constraints: limited access to advanced technology and infrastructure, financial barriers, a lack of full control over some operational activities, and the college's core mission as an academic institution that places tensions with its goal to reduce emissions. Programs central to that mission, such as study abroad and faculty travel, carry unavoidable emissions. To account for what cannot yet be fully eliminated, the college invests in carbon offsets on the voluntary market.

Carbon offsets function as a tool to neutralize residual emissions by supporting activities that either capture and store carbon (known as sequestration) or prevent emissions that would have otherwise occurred under normal circumstances. A common example is the prevention of methane release at landfills, where methane, a greenhouse gas 28 times more potent than carbon dioxide (according to the International Panel on Climate Change), is captured and destroyed. Without such intervention, this gas would otherwise enter the atmosphere as part of the standard waste decomposition process.

It is important to note that the college's participation in the carbon offset market is voluntary, meaning there is no regulatory requirement mandating these purchases. The cost of offsets is determined by market forces, not by legislation or cap-and-trade systems. Prices are set based on demand and supply in the carbon market, which represents the financial value placed on reducing one metric ton of carbon dioxide equivalent ($MTCO_2e$).

Alongside carbon offsets, the college also purchases Renewable Energy Certificates (RECs) to support renewable electricity production. Both offsets and RECs represent a way for the college to use its financial power to advance broader climate goals beyond its immediate footprint. These purchases are best understood not in terms of tracing individual molecules of greenhouse gases or electrons on the power grid, but by following the flow of funding: dollars that enable decarbonization projects to happen.

Together, these efforts allow Colorado College to continue modeling sustainability at the institutional level, even while working within the current limitations of infrastructure, funding, and technology. Carbon neutrality is not the absence of emissions; it is a strategy to take full responsibility for them.

Goals and Future Areas for Improvement

While Colorado College has maintained carbon neutrality since 2020 and has made consistent progress in reducing gross emissions over the long term, the FY24 inventory reveals key areas for further improvement, particularly in Scope 1 and Scope 3 emissions. Although total gross emissions remain significantly lower than the 2008 baseline by approximately 32%, recent trends show a leveling off in emissions reductions, which highlights the importance of renewed institutional focus and updated strategies.

Scope 1 emissions saw a notable decrease in FY24, driven largely by an 11.6% reduction in on-campus stationary fuel use—the largest contributor within this scope. However, fluctuations in refrigerant and chemical emissions, along with increased transportation-related emissions from campus vehicles and arena operations, signal the need for more consistent emissions management across all direct sources. Future strategies should prioritize expanded electrification of college-owned vehicles, replacement of fossil fuel-dependent emergency systems, and improved monitoring and maintenance of refrigerants and related infrastructure.

Scope 2 emissions remain at zero for the fourth year in a row, thanks to continued investment in Renewable Energy Certificates (RECs). However, the college's on-site solar monitoring systems are currently inoperative, making it impossible to accurately measure and manage the electricity generated from on-campus solar infrastructure. Repairing these systems and expanding on-site renewable energy capacity will represent a tangible and meaningful opportunity for improvement.

Scope 3 continues to account for the vast majority of Colorado College's total emissions. In FY24, Scope 3 emissions increased modestly by 1.89% over the previous year. This modest rise was driven primarily by higher emissions from study abroad travel, student travel to and from home, and faculty/staff commuting. While some of these increases are the result of improved survey design and data collection methods, they still highlight Scope 3 as a central challenge in reaching future emissions reduction targets. To help lower Scope 3 emissions, the college should consider launching a travel offset initiative aimed at minimizing avoidable travel-related emissions, while the Office of Sustainability continues to promote sustainable transportation habits within the student community.

Colorado College aims to reduce Scope 1 emissions by an additional 25% from 2008 levels by 2030 and to achieve a similar 25% reduction in Scope 3 emissions by 2027. Achieving these goals will require sustained effort, strategic coordination, and broad campus engagement. As part of this work, the Emissions Team hopes to take on a more active role in facilitating conversations with key stakeholders and decision-makers. Producing this report is one step in that effort, serving as both a tool for accountability and a foundation for informed action. In addition, the team is working to streamline data collection and input processes to support more efficient and accurate reporting in future years.

Conclusion

In FY24, Colorado College maintained its commitment to carbon neutrality for the fourth consecutive year, continuing to offset all remaining emissions through verified carbon offsets. This achievement reflects not only the institution's long-standing prioritization of climate action, but also the daily work of emissions tracking, reduction planning, and transparent reporting. Yet neutrality does not signal the end of the work, it is a framework for accountability that invites ongoing effort.

This year's inventory reflects measurable progress, including a 32% reduction in gross emissions since the 2008 baseline, a continued elimination of Scope 2 emissions through REC purchases, and a significant reduction in Scope 1 emissions. These achievements demonstrate how sustained investment, planning, and collaboration can yield meaningful results. Still, the data also highlights the complexity of Scope 3 emissions, which remain the largest share of the college's carbon footprint and present the greatest challenge for future reductions.

Colorado College also has an internal goal of 25% reduction in Scope 1 emissions by 2030 and a 25% reduction in Scope 3 emissions by 2027, both from 2008 levels. As an institution that has defined sustainability as one of its guiding lenses, achieving these goals will require continued alignment between operational decisions, planning processes, and climate commitments.

Ongoing effort is also reflected in this report. What this report demonstrates is not perfection, but persistence. Some emissions decreased; others increased. Some methods improved; others revealed new limitations. Through it all, the college remains committed to transparency, not only in what it can currently measure, but in acknowledging where its understanding of institutional emissions is still developing. This includes being honest about the gaps between current practices and long-term sustainability goals, and the work still needed to close that gap. This commitment ensures that Colorado College remains honest about its impact and intentional about its path forward.

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All faculty and staff who completed the commuting survey

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(Emissions Interns, from left to right: Ethan Stewart '25 & Tam Phan '25)