

Eagle County Energy Inventory

2019 & 2020 data on energy use and emissions



KEY FINDINGS

The **Covid-19 pandemic** had a major impact on greenhouse gas (GHG) emissions in 2020, with Eagle County's total GHG emissions decreasing by almost 20% compared with 2019. Given that anomaly, the county's progress to date looks very different depending on whether numbers from 2019 or 2020 are used. Thus this inventory provides side-by-side charts comparing data from both 2019 and 2020. Going forward, it will be important to analyze 2021 data to better understand the county's energy and emissions trends.

Eagle County's GHG emissions totaled **1.45** million metric tons of carbon dioxide equivalent (CO₂e) in 2019, and **1.17** million metric tons in 2020. When compared with 2014, total emissions *increased* by 7.6% in 2019, whereas between 2014 and 2020 they *decreased* by 12.9%.

While **electricity** consumption remained essentially unchanged between 2014 and 2020, emissions attributable to electricity decreased by 45% over the same period thanks to the grid's growing proportion of renewable energy. Holy Cross Energy has increased its share of **renewables** from 20% in 2014 to 39% in 2017 to 46% in 2020.

Compared with 2014, **natural gas** usage in buildings

increased by 16.1% in 2019 and by 4.0% in 2020. This continued upward trend is in sharp contrast with the decrease in emissions from electricity, and should add greater urgency to efforts to reduce natural gas usage in homes, businesses and institutional buildings and facilities.

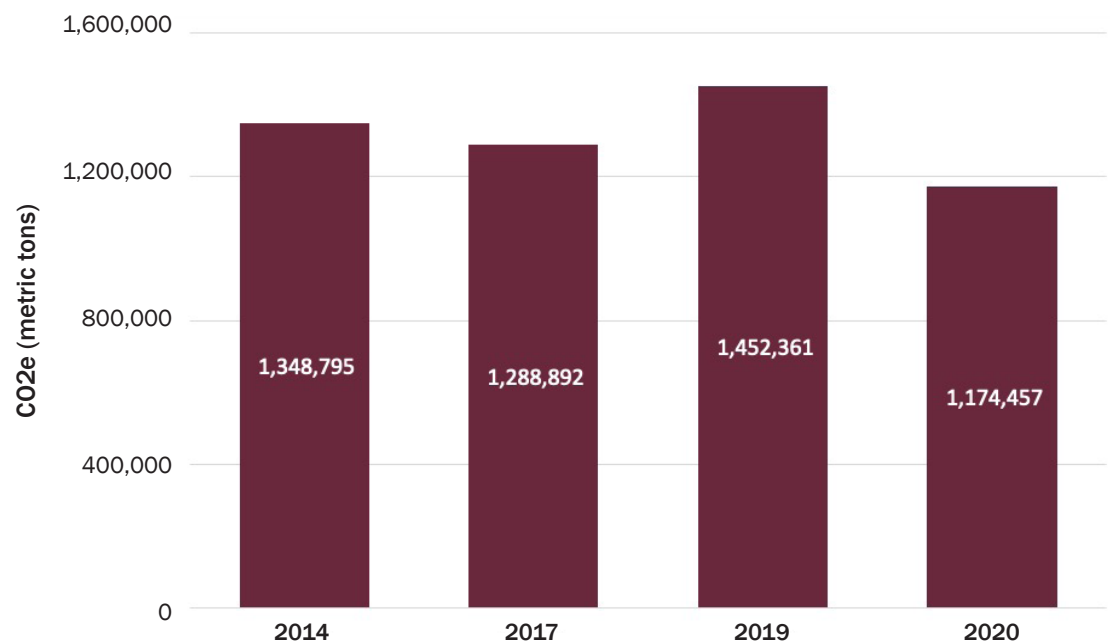
Transportation emissions decreased in 2020, but that was a result of Covid-19 travel restrictions. Between 2014 and 2019, transportation emissions increased by 58.3%. However, this increase may be due in part to a change in the method for collecting transportation data for this inventory, as explained in section 4.

In both 2019 and 2020, vehicle trips entering (inbound) and leaving (outbound) Eagle County accounted for about three-quarters of all ground transportation emissions. Reduction efforts need to include support for regional and state public transit systems, along with increasing the adoption of electric vehicles.

Solid waste in Eagle County was diverted at a rate of 30% in 2020 and 20% in 2019. Both of these rates represented increases over 2014. Food and yard waste should be the focus of future diversion efforts, as organic waste is the primary driver of the county's landfill emissions.

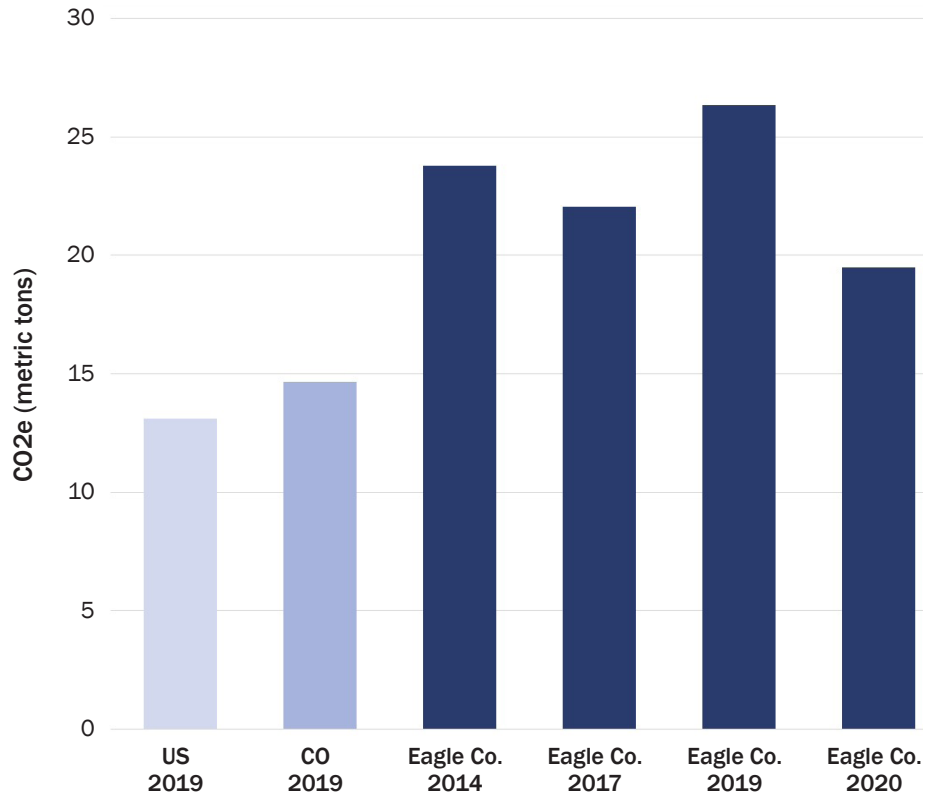
Section 1: Overview of Emissions

1. Total Emissions, CO₂e (metric tons), 2014-2020



2. Emissions per Capita, CO₂e (metric tons), 2014-2020

On a per capita basis, GHG emissions are higher in Eagle County than in the U.S. and Colorado. Contributing factors are transportation (commute distances are double the national average) and second homes and lodging (which contribute emissions from visitors who are not counted in the permanent population).

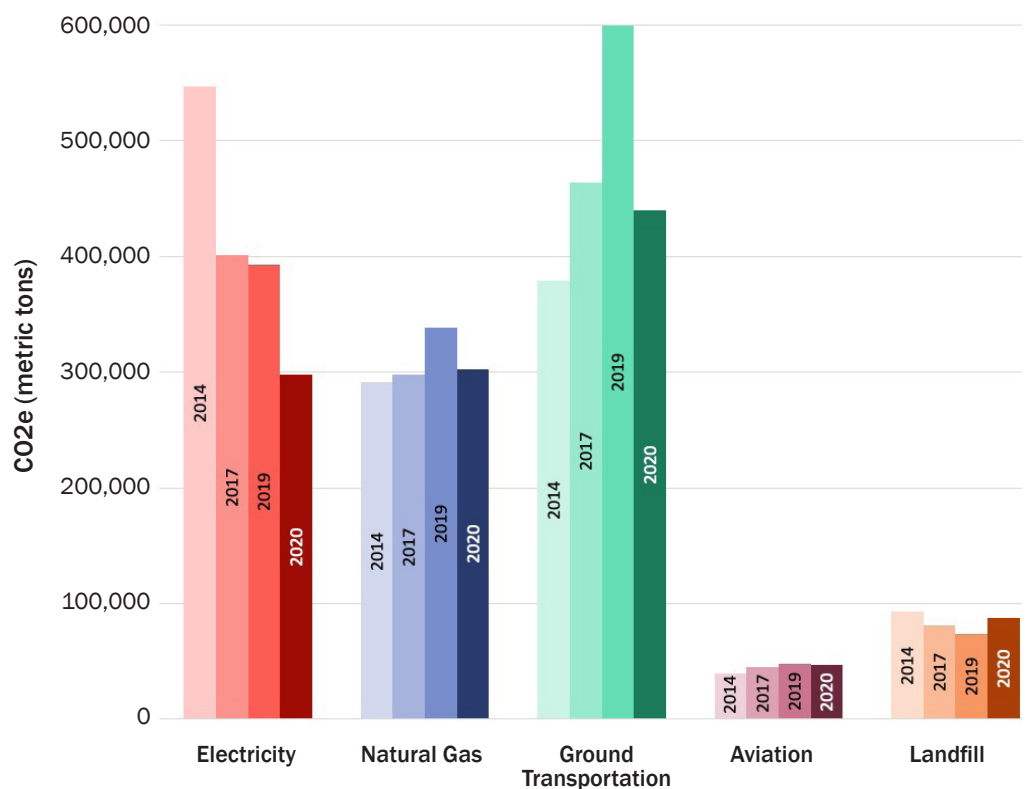


3. Emissions by Sector, CO₂e (metric tons), 2014-2020

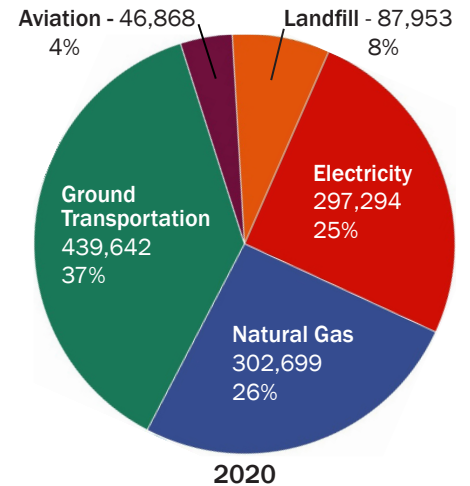
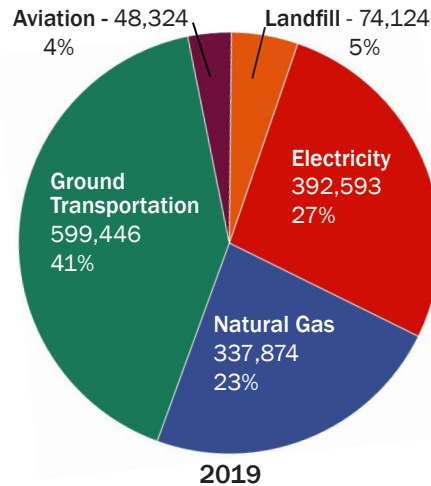
The largest decline in emissions in both 2019 and 2020 was in electricity usage. This decline is a result of utility companies incorporating more renewable energy into the grid and generating less electricity with coal.

Emissions from natural gas and transportation rose by 16.1% and 58.3% respectively in 2019, compared to 2014. Both sectors saw steep but artificial declines in 2020 due to the Covid-19 pandemic.

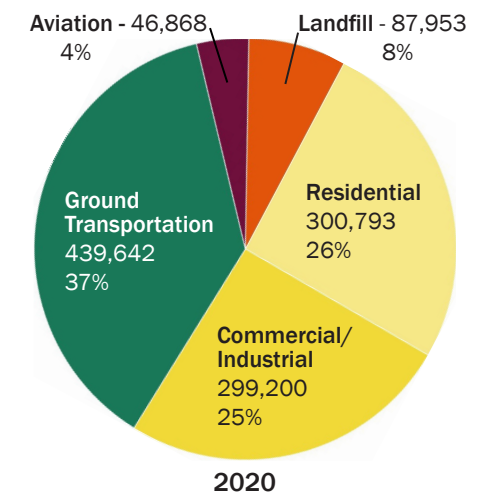
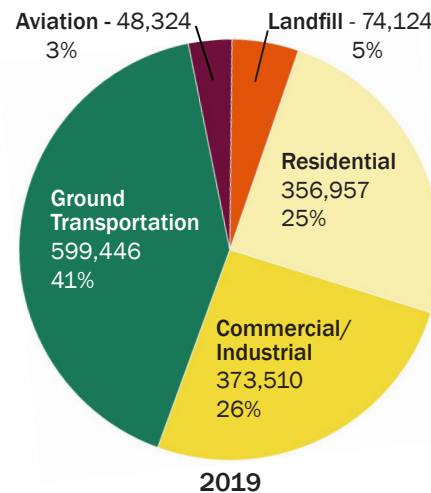
Starting in 2019, transportation data was collected in a significantly different way, making it hard to compare emissions totals to those from earlier years. See the transportation section below for a more detailed explanation.



4. Emissions by Sector, CO2e (metric tons), 2019 vs. 2020



5. Emissions by Activity, CO2e (metric tons), 2019 vs. 2020



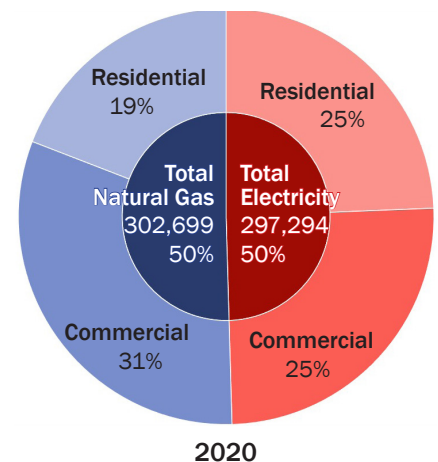
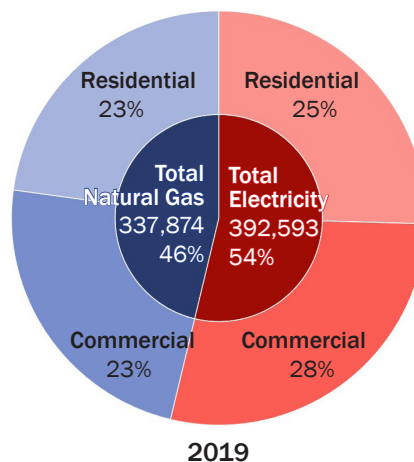
Ground transportation continues to be the single largest contributor to emissions in the county, as it is nationally. That said, buildings – which comprise both the residen-

tial and commercial/industrial portions of these charts – produce even more emissions, with natural gas accounting for a growing share of those emissions.

Section 2: Utility Energy

6. Emissions by Activity, CO2e (metric tons), 2019 vs. 2020

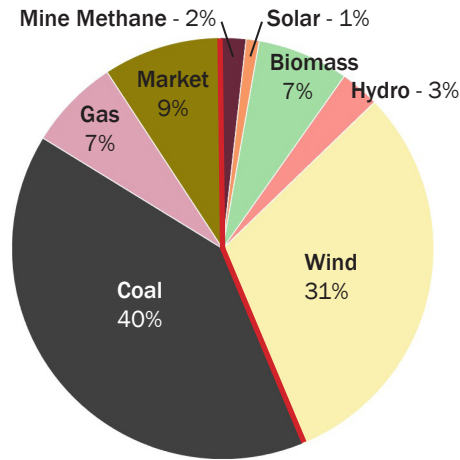
As utility companies have brought more renewables on line, electricity's share of emissions from energy use in buildings has been surpassed by those from natural gas.



7. Holy Cross Energy Electricity by Sources, 2019 vs. 2020

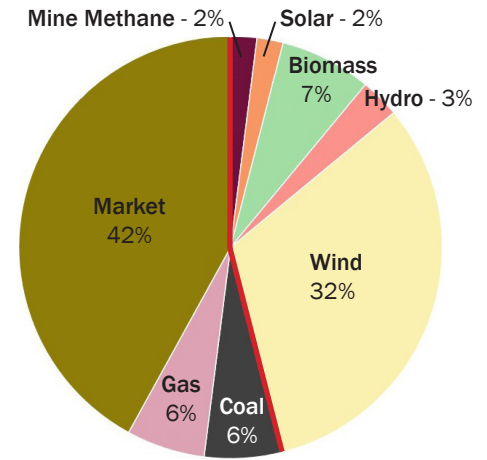
Holy Cross Energy provides 98% of the electricity consumed by grid-tied customers in Eagle County. Xcel Energy provides approximately 60% of all the natural gas in the county.

While Holy Cross Energy purchases most of its power from Xcel, Guzman Energy LLC and the Western Area Power Administration, it also has a growing portfolio of power purchase agreements with locally sited renewable energy projects, including 7 small hydroelectric generators and 10 community-scale solar arrays. Over 46% of the energy Holy Cross Energy provided in 2020 was from renewable sources – up from 39% in 2017. Mar-



2019 Renewable Energy: 44%

ket sources are a mix of coal and gas but could not be identified by



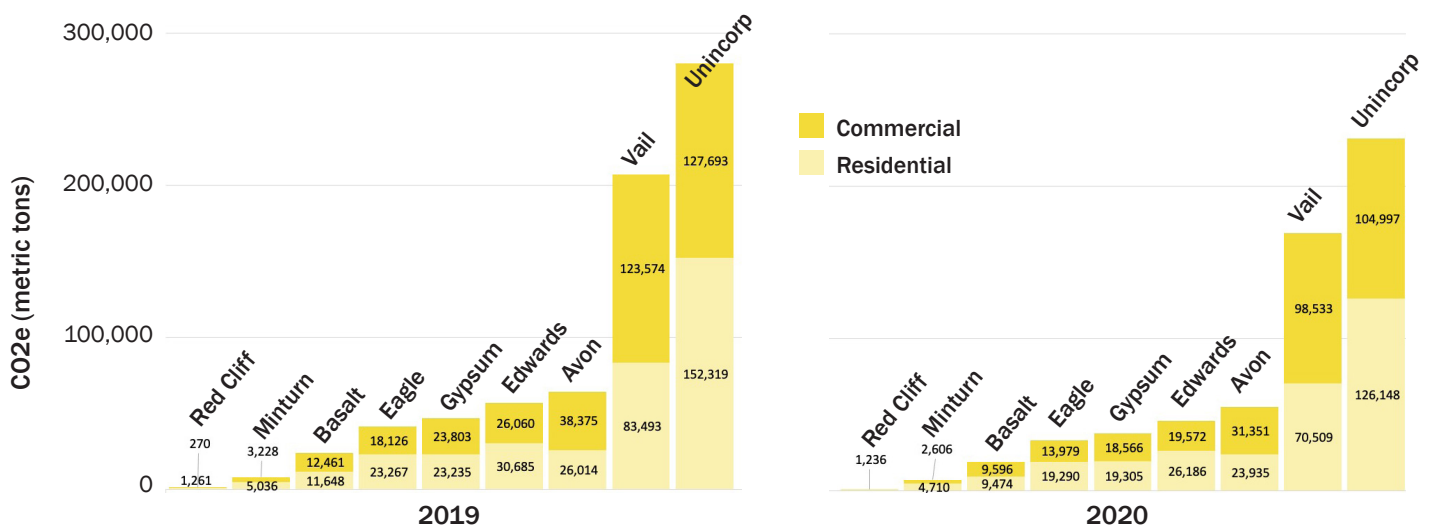
2020 Renewable Energy: 46%

Holy Cross Energy with a high level of certainty.

Section 3: Community Energy Emissions

The emissions tracked in this section include only those attributable to energy use in buildings. Transportation and waste emissions are not reported at the community level at this time.

8. Residential and Commercial Emissions by Community, CO2e (metric tons), 2019 vs. 2020



Notes:

Edwards: Data for Edwards, an unincorporated community, includes the entire 81632 zip code.

Unincorp: Includes all meters in unincorporated Eagle County other than the Edwards 81632 zip code. Unincorporated Eagle County has more population and housing units than any of the county's individual municipalities.

Commercial: A broad utility designation for a meter serving properties such as hotels, multi-family complexes with one meter, recreational facilities (lifts and snow-making equipment), government buildings, schools, retail, industrial and manufacturing facilities.

9. Residential and Commercial Emissions by Community, CO2e (metric tons), 2014-2020

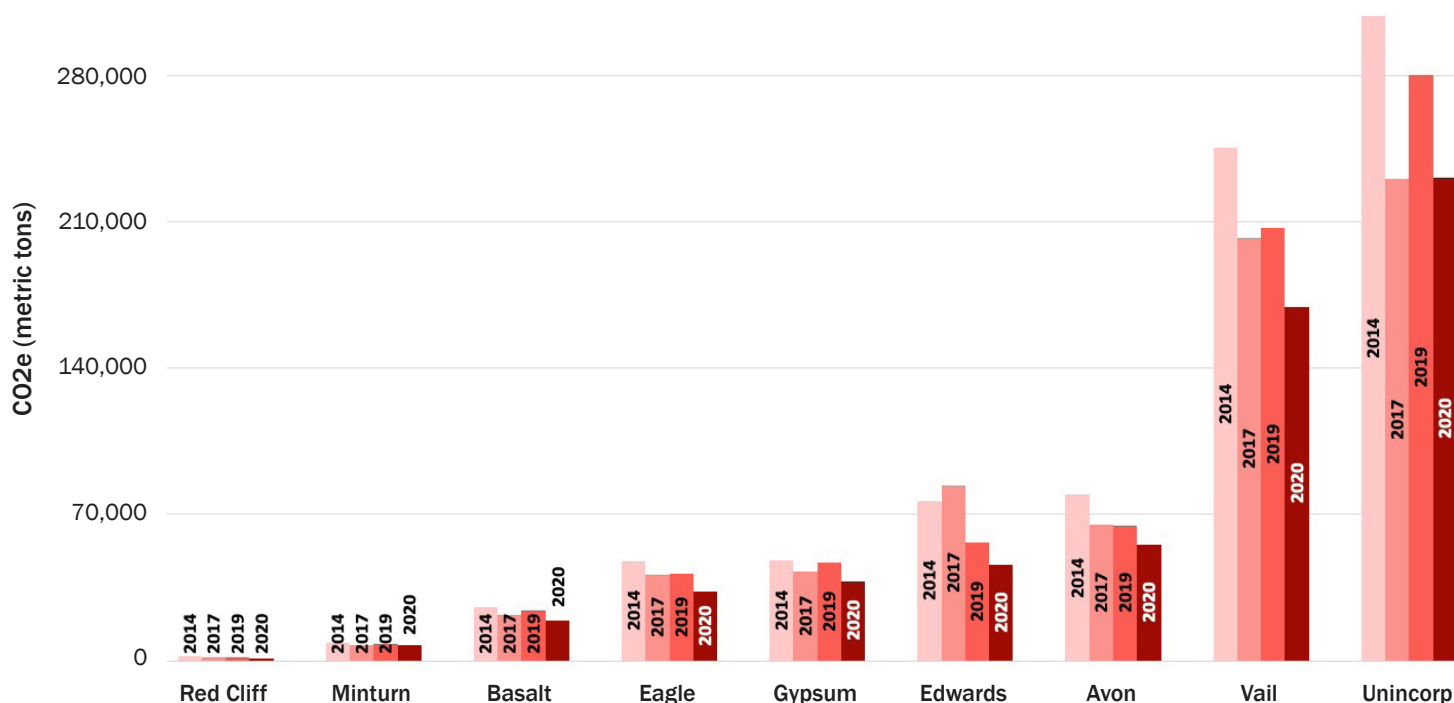


Chart 9 shows that all communities except Edwards, Avon and Red Cliff showed increased GHG emissions in

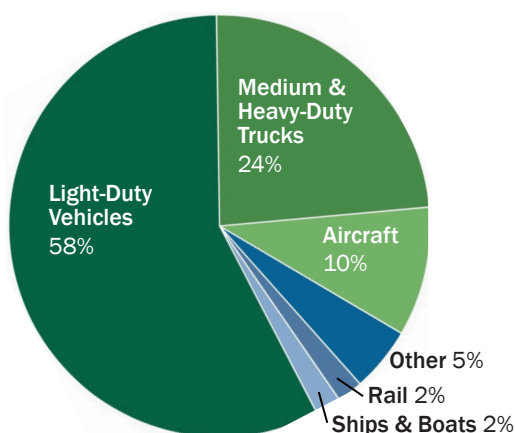
2019 compared to 2017. The declines in 2020 are presumed to be largely, if not entirely, due to Covid-19.

Section 4: Transportation Energy Emissions and Use

The data collection process for transportation in this inventory has changed compared to past inventories. Transportation data for 2019 and 2020 was collected using Google's Environmental Insights Explorer, which uses location services on individuals' electronic devices to estimate transportation use within an area (in-boundary), going to an area (inbound) and going from an area (outbound). This data became available in 2018 and has improved with accuracy each year. This data is very different from the CDOT data used and analyzed in prior inventories.

Therefore, the data is not comparable. For example: the Google data includes the emissions for the entire trip of someone driving from outside of the county and arriving inside the county, while the CDOT data collected was only the VMT within the county. The inventories are making this shift for the 2019 and 2020 data, and will start tracking annual progress using this data available from Google.

10. U.S. Transportation Sector Emissions, 2019

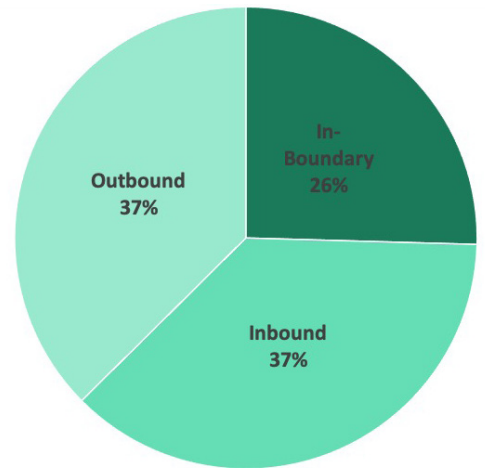


Eagle County's transportation emissions and fuel use are consistent with those across the U.S. Within the transportation sector, light-duty vehicles (including passenger cars and light-duty trucks) are the largest category by far, accounting for 58% of transportation emissions.

11. Eagle County Energy Use by Trip Type, CO2e (metric tons), 2018-2020



12. Eagle County Energy Use by Trip Type, 2020



In Charts 11 and 12 it is evident that vehicle trips coming into (inbound) and leaving (outbound) Eagle County account for the majority of vehicle emissions. This makes sense given the large number of visitors Eagle County receives each year. In-boundary transportation emissions may be a closer approximation of the transportation

emissions from full-time residents of Eagle County.

Emissions from vehicle transportation were significantly down in 2020. This decline was a result of the Covid-19 pandemic. The trend of increasing emissions seen between 2018 and 2019 is likely to resume once 2021 data is collected.

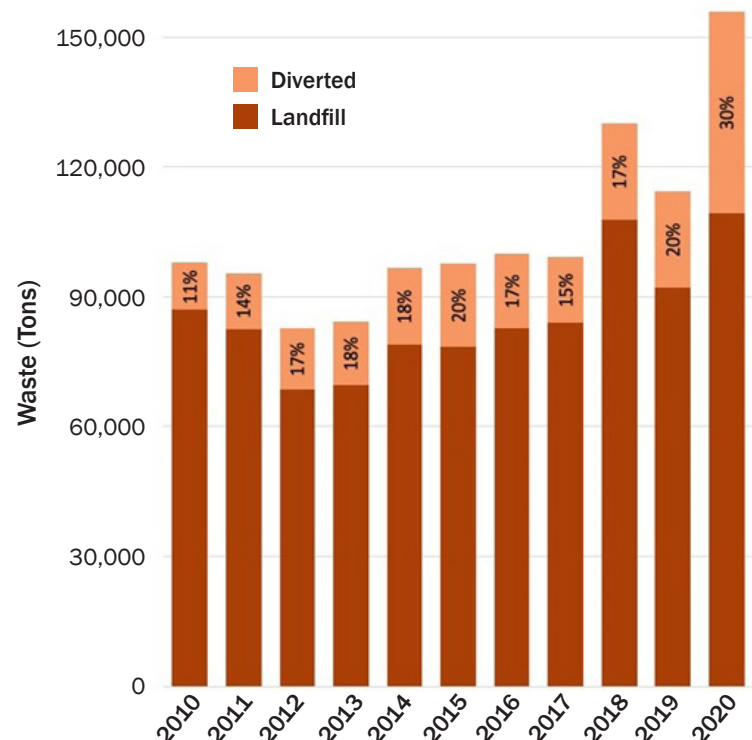
Section 5: Solid Waste Emissions

13. Waste by Disposal Method, tons, 2010-2020

While the amount of waste diverted from the Eagle County landfill has increased steadily since 2012, so has the amount of waste delivered to it. In 2020, the landfill received 109,319 tons of waste, while 46,589 tons were diverted – both figures setting all-time records.

Waste was the only sector for which GHG emissions increased in 2020 compared to 2019. Based on an audit of incoming waste at the Eagle County landfill, incoming waste produced 87,953 metric tons of CO2e in 2020, compared to 74,124 metric tons in 2019. Organic material left to decompose in the landfill is the primary source of solid waste emissions.

The recycling rate in 2020 was slightly lower (31%) than the national average of 32%. Increased diversion efforts, especially composting, can reduce solid waste emissions.



Acknowledgments and Sources

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Editing and layout by Dave Reed.

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Action Collaborative to measure progress toward its goals.

The following individuals provided data, insight, support, and expertise for this report: John Gitchell, Eagle County; Mike Steiner, Holy Cross Energy; Mike Beyer, Yampa Valley Electricity Authority; Erik Lundeen, Black Hills Energy; and Christopher Bain, Google's EIE Platform.

ENERGY INVENTORY PROTOCOL

The Eagle County Energy Inventory quantifies total energy use, and carbon emissions by sector and by fuel and utility source, using 2014 as the baseline year and adding new data from 2017, 2018, 2019 and 2020.

The inventory's purpose is to understand how and where energy is used and emissions are generated. With this information in hand, each energy-using sector can identify opportunities to increase efficiency, reduce emissions and reduce costs.

This inventory complies with the U.S. Community Protocol for Accounting and Reporting of GHG Emissions (USCP). At least five emission-generating activities must be included for an inventory to be USCP compliant. This inventory surveys five activities: residential energy, commercial energy, vehicles, aviation and the landfill.

SOURCES

Section 1.1

Holy Cross Energy, Xcel Energy, Black Hills Energy, Yampa Valley Electric Association, Eagle County Airport, Colorado Department of Transportation, Google Environmental Insights Explorer, and the 2020 Eagle County Diversion Report.

Section 1.2

U.S. 2019 data from U.S. Census Bureau's Explore Data (<https://data.census.gov/cedsci/>). Colorado 2019 data from Colorado 2021 Greenhouse Gas Inventory Update With Historical Emissions from 2005 to 2019 and Projections to 2050, released September 2021 (https://drive.google.com/file/d/1SFtUongwCdZvZEEKC_VEorH-ky267x_np/view).

Sections 1.3 - 2.6

Holy Cross Energy, Xcel Energy, Black Hills Energy, Yampa Valley Electric Association, Eagle County Airport, Colorado Department of Transportation, Google Environmental Insights Explorer and 2020 Eagle County Diversion Report (Walking Mountains Sustainability).

Section 2.7

Holy Cross Energy Power Supply Report (<https://www.holycross.com/greenhouse-gas-emissions/>).

Sections 3.8 - 3.9

Holy Cross Energy, Xcel Energy, Black Hills Energy and Yampa Valley Electric Association.

Section 4.10

U.S. Environmental Protection Agency: Fast Facts on Transportation Greenhouse Gas Emissions (<https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions>).

Sections 4.11 - 4.12

Google Environmental Insights Explorer (<https://insights.sustainability.google/>).

Section 5.13

2020 Eagle County Diversion Report, Walking Mountains Sustainability.