ALAMEDA COUNTY
GREENHOUSE GAS EMISSIONS INVENTORY
FOR COUNTY GOVERNMENT OPERATIONS AND SERVICES

INVENTORY YEAR: 2019

Executive Summary and Progress Update
Prepared by the Office of Sustainability
General Services Agency
April 2021

Key Findings

In 2019, Alameda County's government operations generated an estimated 43,372 metric tons of CO_2e. Employee commutes, natural gas usage in facilities, and fuel usage in our vehicle fleet were the largest contributors to our emissions.

The County achieved a 31% reduction in emissions compared to its 2003 emissions baseline, exceeding our minimum reduction target set in 2010. Switching to clean electricity in our buildings and infrastructure contributed the most to our emissions reductions.

Purpose

In 2010, Alameda County's Board of Supervisors adopted the *Alameda County Climate Action Plan for Government Operations and Services,*[1] stating that the result of addressing climate action will be, "wise investments of taxpayer dollars for long-term savings, improved services, promotion of the local green economy, and ultimately, improved quality of life for County residents."[2] The Climate Action Plan set the target of achieving a 15% to 30% reduction in greenhouse gas (GHG) emissions from 2003 levels by 2020 and a long term target of 80% reduction by 2050.

In 2019, the Alameda County General Services Agency Office of Sustainability conducted an updated GHG emissions inventory to track our progress. Because of temporary operational changes due to COVID in 2020, we consider the 2019 inventory more representative of typical results and comparable to past results than a 2020 inventory.

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[1] The climate action plan for unincorporated areas of Alameda County is a separate plan that can be found on https://www.acgov.org/sustain/what/climate/plan.htm.

[2] *Alameda County Climate Action Plan for Government Services and Operations Through 2020: Executive Summary*, https://www.acgov.org/sustain/documents/climateactionplan_executivesummary.pdf.

Methodology

In conducting this inventory, the County followed the Local Government Operations Protocol and the emission inventory framework developed by ICLEI – Local Governments for Sustainability.

The inventory focuses on greenhouse gas emissions from the County government's internal operations. It is what is called a tail-pipe emissions inventory, meaning that it does not account for the additional upstream and downstream emissions associated with the production and transportation of the goods and services consumed by the County government.[3]

The inventory accounts for emission sources across all County operations, including our facilities, infrastructure (such as streetlights and traffic controls in unincorporated areas), vehicle fleet, employee commutes and business travel, and solid waste. Twenty-four County agencies and departments were included; the Fire Department, Zone 7 Water Agency, and Alameda County Employees' Retirement Association (ACERA) were not included in the greenhouse gas emissions accounting for governance and operational scope reasons.

County departments, waste haulers, and energy and fuel vendors provided the input data, such as electricity, natural gas, and fuel usage, vehicle miles traveled, and amount of waste generated. To estimate employee commute emissions, we use commonly accepted protocol consistent with previous County inventories of utilizing annual commute survey data to determine miles traveled. We converted this data to greenhouse gas emissions – carbon dioxide, methane, or nitrous oxide – by applying regionally appropriate conversion and emission factors. We then converted methane and nitrous oxide emissions to their carbon dioxide equivalent (CO_2e) in order to create a single emissions number.[4]

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[3] We completed a supply-chain analysis for 2014-15 purchases, which can be found on http://www.acgov.org/sustain/what/purchasing/report.htm. A key finding was that estimated supply chain emissions are three times larger than our government operations inventory emissions for the same year, with largest emissions contributors being professional and community services and construction and maintenance services.

[4] Carbon dioxide equivalent is a convention used to aggregate different greenhouse gases for reporting in terms of their impact on the climate. For example, methane is 21 times more potent than carbon dioxide. Therefore, 1 metric ton of methane is considered to be 21 tons of CO_2e.

2019 Inventory Results

In 2019, the County generated approximately 43,372 metric tons of CO_2e. The largest sources of emissions were fuel used by employees commuting to work (53%), natural gas and electricity used in our owned and leased facilities (31% collectively), and fuel used by the County's fleet vehicles (11%). Combined, these sources accounted for 95% of total emissions.

Figure 1: Greenhouse Gas Emissions by Sector
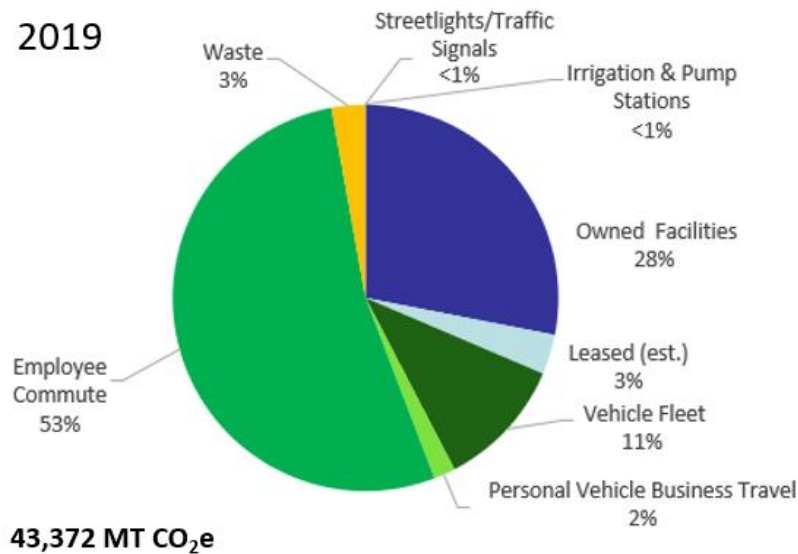
Comparison to Baseline Year

We check our progress on reducing GHG emissions by comparing 2019 emissions to those in a baseline year of 2003. We use 2003 because accurate data was available for that year and because it is prior to the implementation of some major emissions reduction projects such as solar installations and new LEED®-certified facilities.

Comparing 2019 to 2003, the greatest absolute emissions reduction was in the buildings and facilities sector. Owned facilities emissions decreased by nearly half, primarily as a result of the County's switch to carbon-free electricity: Since 2018, Alameda County's owned facilities have utilized carbon-free electricity provided by our local power provider, East Bay Community Energy.[5] In addition, we continued

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[5] East Bay Community Energy offers three power mix products. For the 2019 inventory period, the County subscribed to Brilliant 100, a carbon-free product that comes from renewable and large hydropower sources at the same cost as PG&E.

to expand onsite renewable electricity, which in 2019, contributed 16% of our total electricity needs for owned County facilities. Increases in energy efficiency also contributed to reductions.

Streetlights and water pumps showed the greatest percent reduction, as this infrastructure now generates almost no emissions, due to the County's switch to clean power from East Bay Community Energy.

Employee commutes remains the largest source of emissions, achieving only a two percent reduction in absolute emissions and a six percent reduction on a per capita basis, accounting for the increase in employees over time. This can be a challenging area to tackle because it is affected by regional factors such as the availability of affordable housing near workplaces.

*Table 1: Greenhouse Gas Emissions by Sector Comparing Baseline Year and 2019*

Major Sectors	2003	2019	Difference in Emissions	Percent Difference
Buildings & Facilities				
Owned Facilities	21,814 CO_2e (MT)	12,176 CO_2e (MT)	-9,638 CO_2e (MT)	-44%
Leased Facilities (est.)	6,728 CO_2e (MT)	1,448 CO_2e (MT)	-5,280 CO_2e (MT)	-78%
Infrastructure				
Streetlights & Traffic Control	959 CO_2e (MT)	0 CO_2e (MT)	-959 CO_2e (MT)	-100%
Water Pumps & Irrigation	496 CO_2e (MT)	1 CO_2e (MT)	-495 CO_2e (MT)	-99%
Transportation				
Employee Commutes (est.)	23,489 CO_2e (MT)	22,973 CO_2e (MT)	-516 CO_2e (MT)	-2%
Vehicle Fleet	6,501 CO_2e (MT)	4,753 CO_2e (MT)	-1,748 CO_2e (MT)	-26%
Personal Vehicle Business Travel (est.)	1,010 CO_2e (MT)	789 CO_2e (MT)	-221 CO_2e (MT)	-22%
Other				
Waste	2,110 CO_2e (MT)	1,231 CO_2e (MT)	-879 CO_2e (MT)	-42%
	Total in 2003: 63,107 CO_2e (MT)	**Total in 2019: 43,372 CO_2e (MT)**	**Final Difference: -19,736 CO_2e (MT)**	**-31%**

The 2019 GHG emissions inventory measured a 31% reduction in GHG emissions, well exceeding the minimum target of 15% reduction over 2003 baseline. Overall, about 75% of the reductions can be attributed to the purchase of carbon-free electricity for our buildings and public infrastructure. Energy efficiency, fleet electrification, use of renewable fuels in our vehicle fleet, and increased diversion of waste from landfill also contributed to our emissions reductions.

Progress Over Time

Alameda County has conducted seven GHG emissions inventories in order to track progress towards meeting the Board-adopted goal of 15% to 30% reduction in emissions by 2020. The estimated emissions measured in each inventory is shown as red dots. The blue trend line indicates the emissions reductions required to meet the Board-adopted long-range goal of 80% emissions reduction by 2050.

Figure 2: Emissions Over Time as Compared to 2020 and 2050 Targets

Emissions Trends & Targets
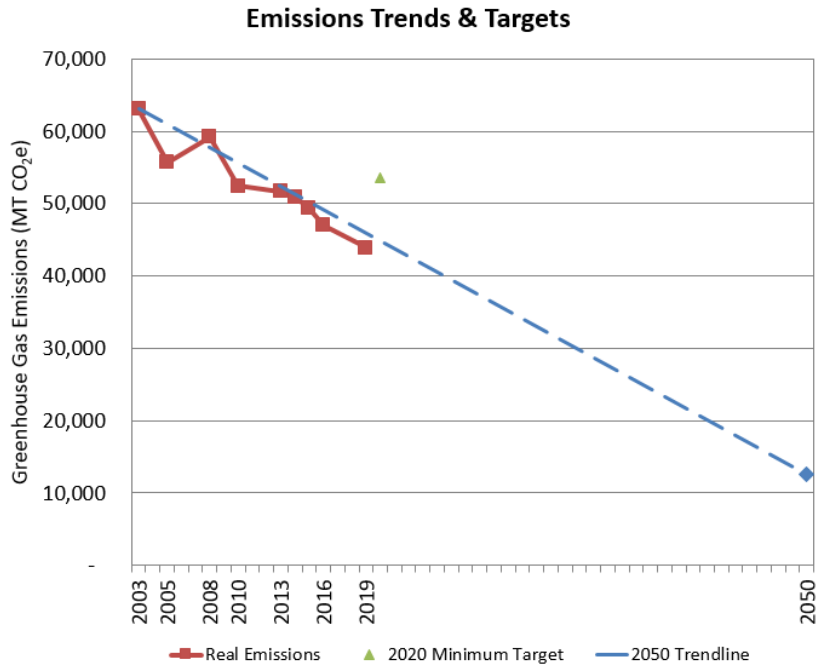
## Areas of Opportunity for Further Climate Action

Alameda County has made great progress towards reducing the climate impact of our operations and service delivery. To continue the downward trend, we must continue to take new strategic actions to reduce our reliance on fossil fuel energy. The largest opportunity areas are in employee commutes, natural gas use in buildings, and fuel use in our vehicle fleet.

Figure 3: Emissions Contributions by Inventory Sector
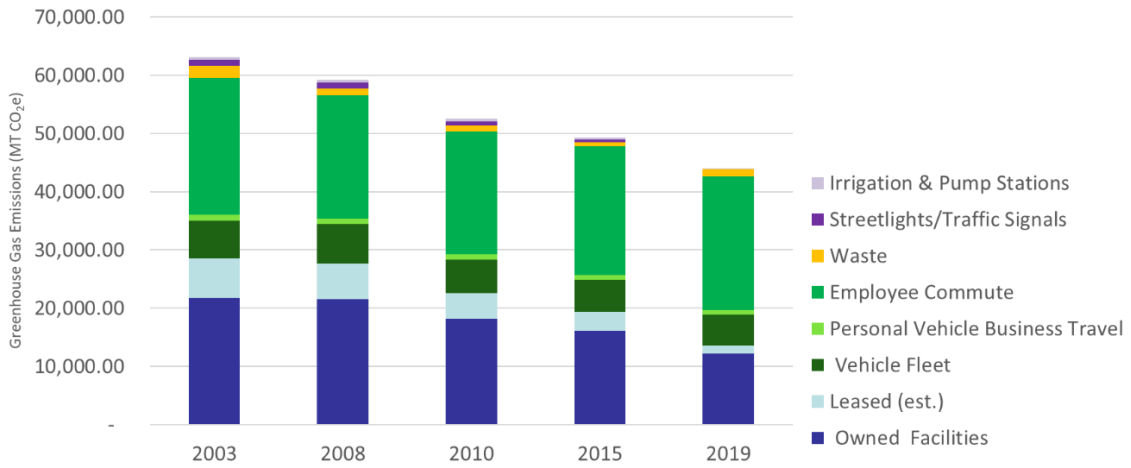
The 2019 inventory and analysis of emissions by fuel source, as shown in the chart below, point to a handful of high-impact strategies that will make the most difference.

Figure 4: Emissions Contributions by Fuel Type
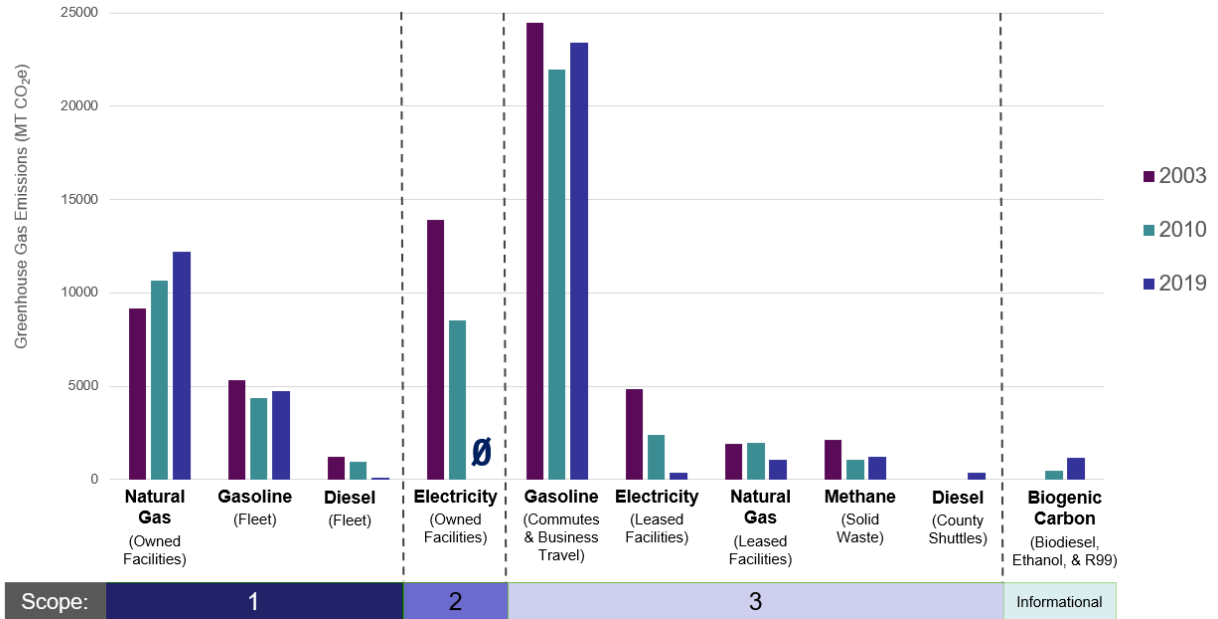
- **Expanding telework and other strategies that reduce the need for employees to commute**. By necessity, employee telework expanded significantly in 2020. In November 2020, the County Board of Supervisors adopted a strategy to support remote work arrangements and virtual first service delivery, which embraces a post-pandemic hybrid work model that can significantly reduce commute emissions.

- **Electrifying building equipment.** Ninety-nine percent of emissions from our owned office space comes from natural gas-fired equipment used to heat buildings and water, provide refrigeration and cooling equipment, to cook and for clothes drying. We can switch out our natural gas-burning equipment for electric equipment at the time of replacement. The State of California is supporting building electrification as a low-cost, low-risk strategy to decarbonize buildings.

- **Right-sizing the building portfolio with a focus on consolidating into our more energy-efficient facilities.** Less office space will be needed as more employees telework more days. The less-efficient facilities will be the most costly to retrofit and electrify.

- **Electrifying the vehicle fleet to capture the emissions reductions benefit of carbon-free energy sources**. As of April 2021, the County has over 80 electric vehicles [and 300 electric vehicles] in our fleet, and we have a good distribution of charging stations at County facilities. Further electrifying the fleet in advance of State bans on internal combustion engine sales will ensure our continued leadership in advancing green fleet technology and ensure we are cost effectively preparing with a next generation fleet.

- **Continuing to use renewable fuel sources for vehicles in our fleet that do not yet have viable electric alternatives.** The County's use of R99 (renewable diesel) in 2019 significantly reduced the amount of fossil-based emissions from our diesel-powered vehicles. Unlike conventional fuels that are derived from fossil fuels, biogenic fuels like renewable diesel are made from plant or animal sources, and therefore do not add new carbon emissions into the atmosphere.

The County will continue to expand its efforts in these areas and formalize its commitments to make progress on these fronts in the climate action and resilience plan now under development.

For More Information

This document can be found on https://www.acgov.org/sustain/what/climate/footprint.htm.

For questions, please contact us through https://www.acgov.org/sustain/who/contactus.htm.