

LOS ALAMOS CLIMATE ACTION PLAN

2024

LOS ALAMOS





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Acknowledgments

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Letter from the County Manager

Los Alamos County is committed to environmental stewardship, a core value that guides our community. Through the 2024 Los Alamos County Strategic Leadership Plan, we have deepened our efforts to protect our natural resources, build resilience, and adapt to an ever-changing climate. Responding to concerns from residents and the County Council, we developed our first-ever Climate Action Plan, marking a milestone in taking strategic climate action.

Our community has experienced first-hand impacts of climate change: rising temperatures, prolonged droughts and increased risk of wildfires. More frequent and intense heat waves are affecting vulnerable populations, while our natural ecosystems including plants and wildlife, are suffering. Drought and heat stress on species have led to shifts in biodiversity and increased tree mortality of our local forests.

Therefore, to protect the health of our community and environment, we've developed the Climate Action Plan to guide our collective efforts to continue expanding renewable energy, improving energy efficiency in buildings, enhancing water conservation efforts, promoting sustainable transportation options and implementing adaptation strategies to make Los Alamos more resilient.

What's exciting is this Climate Action Plan will further the work the County has started, including:

- **Atomic City Transit:** Providing safe, accessible, and equitable public transportation for the community.
- **Expanding Electric Vehicles (EVs):** Increasing the number of EVs in the County fleet and expanding EV charging infrastructure for public and County use.
- **Renewable Energy Projects:** 26 MW coming from the County's two hydroelectric facilities and contracting for 170 MW of solar power and 80 MW of battery storage at Foxtail Flats to grow the County's renewable energy portfolio.
- **Water Conservation:** Implementing the Long Range Water Supply Plan and educational programs to promote sustainable water use.

- **Energy-Efficient Buildings:** In 2006 committed to LEED Silver certification for new buildings over 500 sq ft and retrofitting existing County buildings for greater energy and water efficiency.
- **Bee City USA Designation:** Protecting pollinators by becoming a designated Bee City USA affiliate and supporting native species.
- **Bear-Resistant Trash Program:** Launched a bear resistant trash cart initiative to reduce human-bear interactions.
- **Waste Diversion Programs:** Expanding recycling, mulching, reuse centers, and food composting to reduce waste.
- **Wildfire Mitigation:** Actively implementing strategies like forest management, fuel reduction, and community education to minimize wildfire risks.
- **Emergency Management Plan:** Strengthening preparedness through a robust plan to handle emergencies.
- **Urban Forest Stewardship:** Promoting tree preservation and urban forest management and implementation of the tree replacement program.
- **Public Outreach:** Continuous efforts to educate the community on climate action, sustainability, and water and energy conservation.

While Los Alamos may not single-handedly solve the global climate crisis, pursuing this Climate Action Plan benefits the community today and lays the groundwork for a sustainable future. This plan is our commitment to improving our local quality of life, environmental resilience, and setting a leadership example that can inspire broader change. Our aim is to leave a sustainable and beautiful Los Alamos for future generations.

Sincerely,



Anne Laurent, County Manager
September 2024





Key Terms and Abbreviations

Key terms

Carbon neutrality: A balance between the greenhouse gases emitted into the atmosphere and those removed or offset, resulting in no net increase in atmospheric carbon dioxide and other greenhouse gases.

Circular economy: A model where products are designed to be reused or recycled, which avoids consumption of new raw materials and reduces waste, pollution, and greenhouse gas emissions.

Climate change: The long-term change in climate patterns due to increased levels of atmospheric carbon dioxide and other greenhouse gases, primarily produced by human activities.

Electrification: The transition away from using natural gas and other fossil fuels to electricity (typically generated from renewable energy sources like solar and wind) to power buildings and vehicles.

Multimodal transportation: Accessible transportation through various travel modes beyond single-occupancy vehicles, including pedestrian, bicycle, and public transit.

Sector-based emissions inventory: A type of greenhouse gas emissions inventory that identifies and quantifies emissions within Los Alamos' geographic boundary across different sectors such as transportation and building energy.

Urban forest: An area in a city with dense vegetation, which may include parks, nature preserves, landscaped boulevards, gardens, greenways, river corridors, and other wooded areas.

Abbreviations

CO₂	Carbon dioxide is a greenhouse gas produced by burning fossil fuels and other processes, which contributes to climate change.
CTR	Commute trip reduction programs promote alternatives to driving alone to improve sustainability and reduce traffic congestion. Common elements of CTR programs include transportation demand management strategies like bicycle amenities, carpool and vanpool incentives, transit fare subsidies, and flexible work schedules.
CBEI	Consumption-based emission inventories are a type of greenhouse gas emissions inventory that identifies and quantifies emissions occurring both locally and globally, associated with all items, goods, and services consumed by households in a community.
EV	Electric vehicles derive power from an electric motor rather than a fuel-powered internal combustion engine.
GHG	Greenhouse gas emissions are heat-trapping gases that warm the atmosphere and cause climate change, such as carbon dioxide (CO ₂), methane (CH ₄), and nitrous oxide (N ₂ O).
GSI	Green stormwater infrastructure systems use vegetation, soil, and natural processes to filter, slow, and treat stormwater runoff, such as permeable pavement and rain gardens.
MTCO₂e	Metric tons of carbon dioxide equivalent is a unit of measurement that represents an amount of a greenhouse gas whose impact on climate change has been standardized to that of one unit of carbon dioxide (CO ₂), based on the global warming potential (GWP) of the gas.
NPV	Net present value is the difference between the present value of money coming in and money going out, often used to measure how profitable an investment or project is.
PV	Present value is the value today of a sum of money or cash flow that will be received in the future, adjusted for the time value of money.
TOD	Transit-oriented Development is walkable, pedestrian-oriented, and densely compacted mixed-use (commercial, residential, entertainment) development centered around or located near public transit stations.
VMT	Vehicle miles traveled are the total miles of vehicle travel in a geographic area over a given time.



Executive Summary

Why a Climate Action Plan?

The impacts of climate change—including hotter temperatures, reduced precipitation, and increasing intensity of wildfires—are being experienced in Los Alamos County and beyond. While the County has been working on sustainability initiatives for decades, a more formalized and focused effort began in December 2020, when a group of concerned Los Alamos County residents submitted a petition to the County Council requesting action on climate change. This petition led to the formation of the Los Alamos Resiliency, Energy, and Sustainability (LARES) Task Force and a County Council initiative to address climate change.

This Los Alamos County Climate Action Plan (CAP) represents the next step in implementing this initiative by outlining a vision and roadmap for reducing greenhouse gas emissions and increasing climate resilience in Los Alamos County.



How Did It Come Together?

This CAP is built on several key steps and analyses, including a baseline policy assessment, greenhouse gas inventories, strategy and action development and refinement, GHG and action modeling, cost modeling, and target setting. Throughout the process, community engagement helped to shape the CAP's priorities and actions.

Key themes heard through community engagement included support for transitioning to carbon free energy sources, improving energy efficiency in buildings, expanding and protecting green spaces and natural ecosystems, prioritizing education and engagement, supporting economic development, promoting sustainable transportation options, and practicing water conservation and sustainable waste management. Community members shared their concerns about the cost of climate action and potential financial impacts on community members.

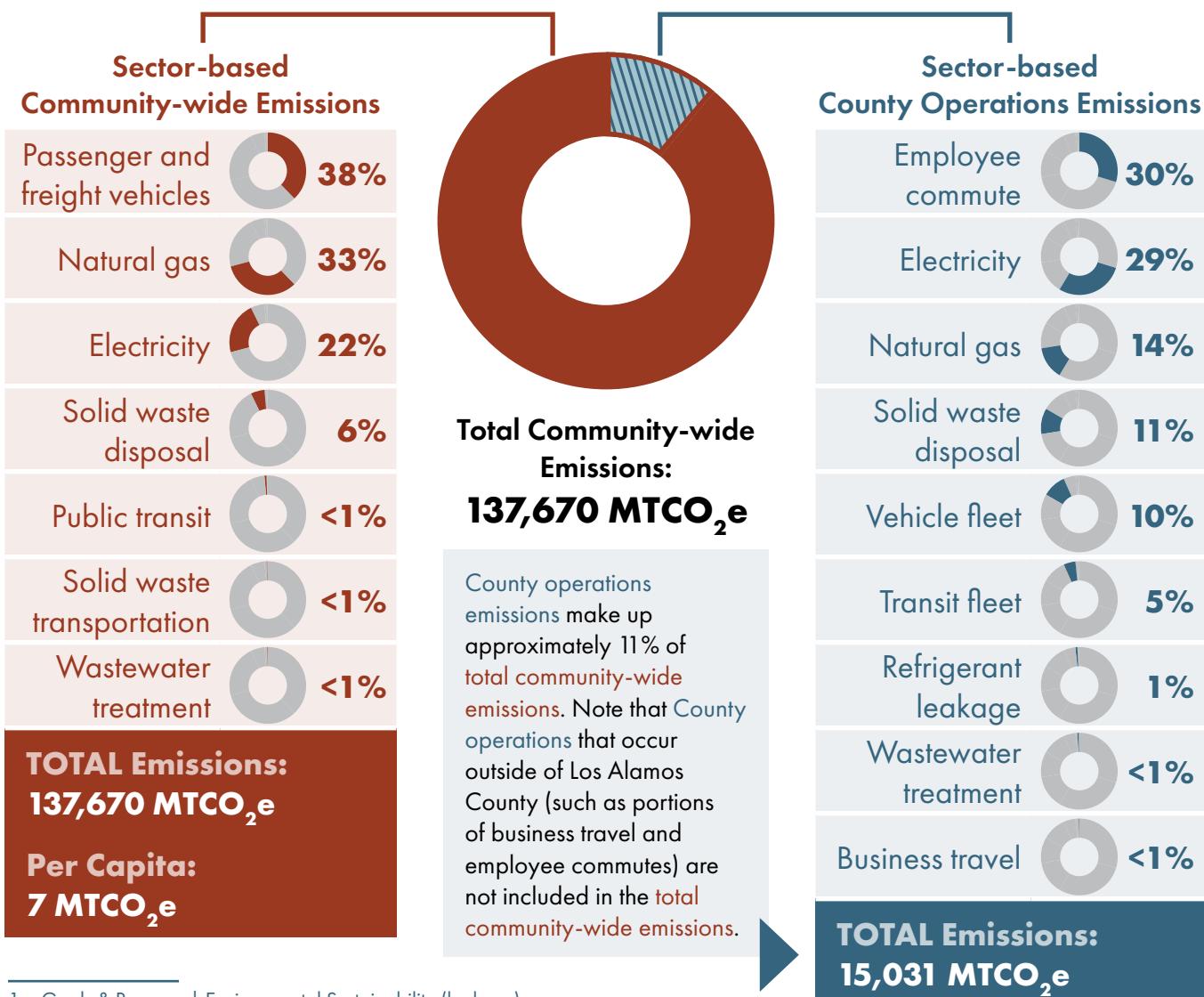


Where Do Our Emissions Come From?

Greenhouse gas (GHG) inventories quantify a jurisdiction or entity's GHG emissions. Different types of GHG emissions inventories apply different lenses to emission sources, thus measuring overlapping but slightly different sources of GHG emissions. Los Alamos County conducted three GHG emissions inventories as part of the CAP process. Understanding the sources and magnitude of our GHG emissions helps us to more effectively plan to reduce those emissions.

The **sector-based community-wide emissions inventory** accounts for emissions produced by residents, visitors, schools, County operations, and businesses within the county's geographic bounds. As much as possible, Los Alamos National Laboratory's (LANL) emissions are not included in the community-wide total, but its emissions impact on the community is considered for informational purposes within the study. In 2022, LANL reported emitting approximately 405,186 MTCO₂e.¹

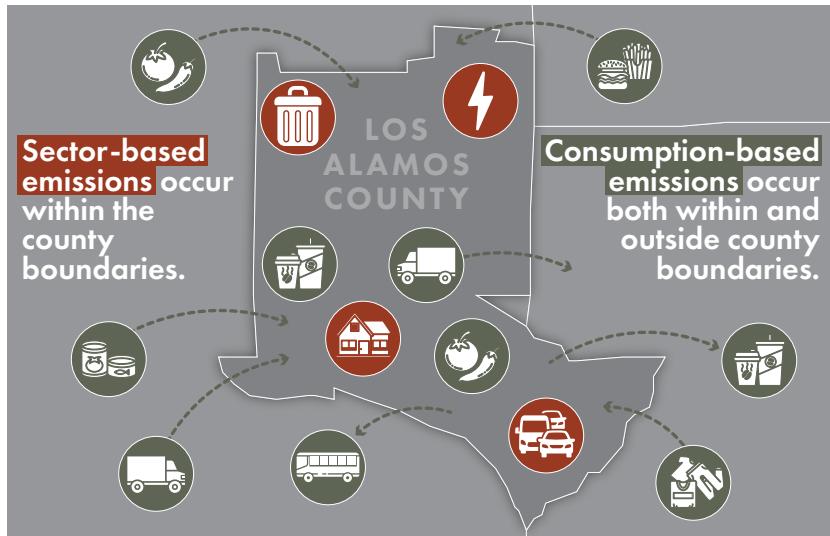
The **County operations emissions inventory** accounts for emissions that are produced by County-owned and -operated facilities and activities and are largely produced within the county's geographic boundary. Note that these County operations emissions are also included as part of the sector-based community-wide emissions total.



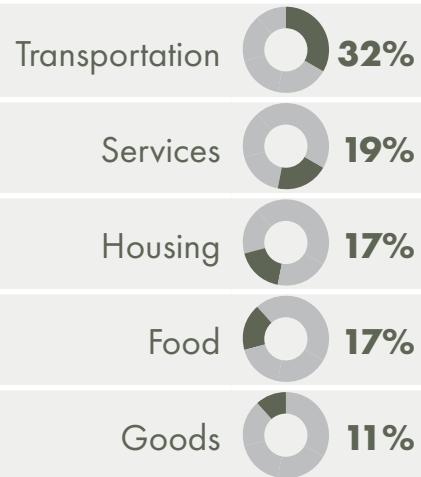
¹ Goals & Progress | Environmental Sustainability (lanl.gov)

Consumption-based Emissions

The **consumption-based emissions inventory** estimates the emissions associated with the household consumption of all residents, including upstream emissions—emissions produced during the production and transportation stages of a product or service. These emissions occur both within and outside of county boundaries.



Consumption-based Community-wide Emissions



TOTAL Emissions:
374,000 MTCO₂e

Per Capita:
20 MTCO₂e

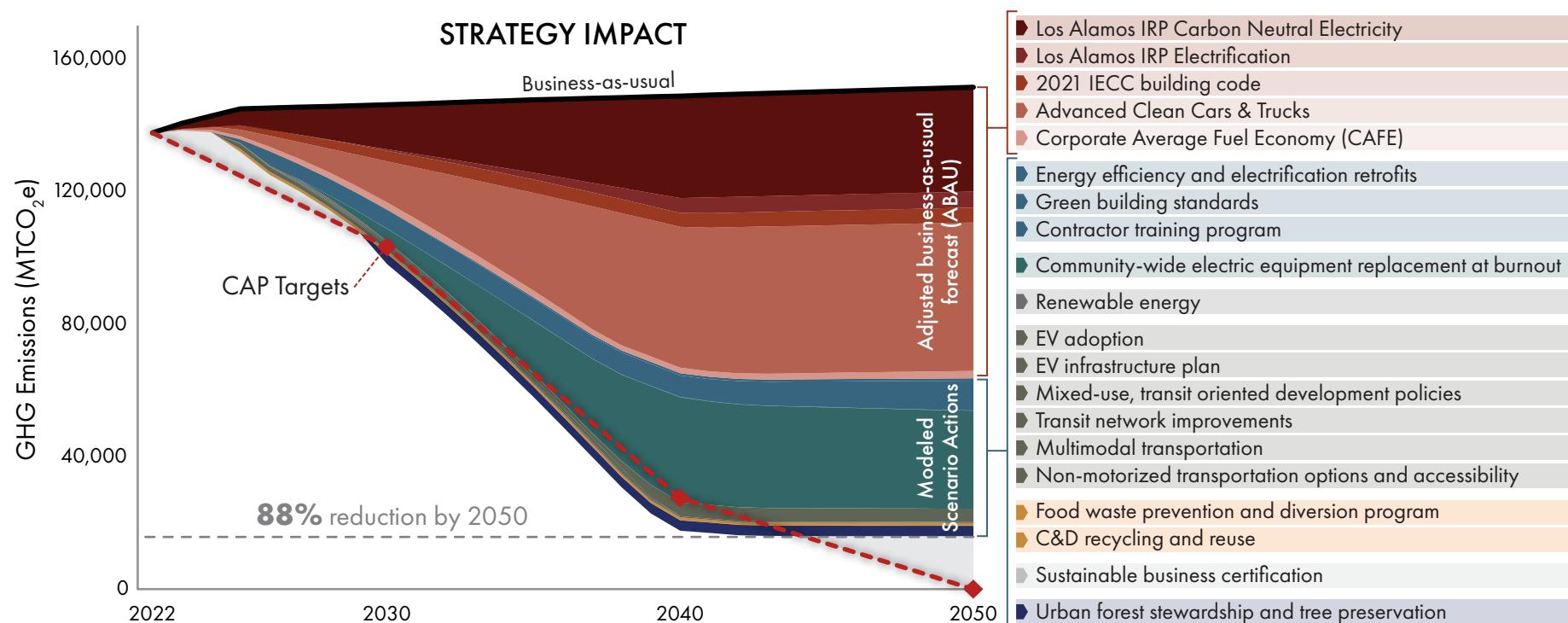


What Would It Take?

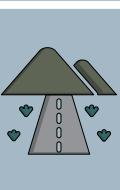
This Climate Action Plan lays out a roadmap for achieving the community's vision of a resilient and sustainable Los Alamos, with the goal of reaching carbon neutrality by 2050, with interim targets of 30% GHG reduction by 2030 and 80% reduction by 2040 (compared to 2022 sector-based community-wide baseline emissions). The CAP strategies and actions contribute to this vision through two primary pathways:

- **Mitigation:** Reducing greenhouse gas emissions from Los Alamos County government and community member activities (100% by 2050 (carbon neutral)).
- **Adaptation & Resilience:** Increasing Los Alamos County government and community resilience to climate change impacts such as drought, flooding, wildfire, and extreme heat.

To achieve these targets, both the County government and community members would need to take ambitious strides to reduce our carbon footprint through the strategies like those shown below. The actions modeled below would reduce community-wide emissions by an estimated 88% by 2050 compared to 2022 emission levels—and would require 100% elimination of natural gas from buildings and 100% adoption of electric passenger vehicles. The remaining 12% reduction would rely on additional federal and state action, technological innovations, regular evaluation of Los Alamos' progress, and consideration of other tools and options beyond actions discussed in this CAP, such as researching and purchasing carbon offsets or implementing regulatory measures.



The Climate Action Plan is organized into six primary focus areas, which each contain key strategies and actions to achieve the County's emission reduction and resilience goals:

FOCUS AREA & STRATEGIES	EXAMPLE ACTIONS
	Buildings & Energy <ul style="list-style-type: none"> • Increase building efficiency and decarbonization • Increase renewable energy generation
	Transportation & Land Use <ul style="list-style-type: none"> • Expand EV infrastructure and adoption • Expand and promote multi-modal connectivity and sustainable land use planning
	Materials & Consumption <ul style="list-style-type: none"> • Maximize waste diversion
	Natural Systems & Water <ul style="list-style-type: none"> • Increase urban green space • Conserve water resources
	Community Resilience, Adaptation, & Wellbeing <ul style="list-style-type: none"> • Enhance community understanding of climate change • Prepare the community for climate impacts
	Cross-cutting <i>(actions that focus on outreach, engagement, partnership, and leadership across sectors)</i> <ul style="list-style-type: none"> • Encourage sustainable businesses • Promote climate education outreach

This CAP aims to distribute benefits and burdens equitably across the community, ensuring that more vulnerable groups receive greater benefits and bear fewer burdens than other groups as a result of CAP actions. As part of this goal, the County will explore opportunities to address financial barriers for community members, build and strengthen inclusive and equitable partnerships, and incorporate diverse perspectives in decision-making.

Implementing the CAP will be an ambitious and ongoing effort by the County and community. As part of this effort, the County should regularly assess and report on progress toward targets and goals, allowing for adjustments and pivots as needed. The County is excited to lead this important work, in collaboration with community members and other partners, to reduce greenhouse gas emissions and increase climate resilience to make Los Alamos County a more sustainable and resilient community.

Introduction

Why a climate action plan?

The impacts of climate change—including hotter temperatures, reduced precipitation, and increasing intensity of wildfires—are being experienced in Los Alamos County and beyond. While the County has been working on sustainability initiatives for decades, a more formalized and focused effort began in December 2020, when a group of concerned Los Alamos County residents submitted a petition to the County Council requesting action on climate change. This petition led to the formation of the Los Alamos Resiliency, Energy, and Sustainability (LARES) Task Force and a County Council initiative to address climate change. In its final report,² LARES Task Force wrote:

“Climate change represents an existential threat to our community and the world, with impacts becoming evident at an accelerating rate: hotter temperatures, reduced precipitation, increasing intensity and frequency of wildfires, and more animals seeking food near our homes.”

This Los Alamos County Climate Action Plan (CAP) represents the next step in implementing this initiative by outlining a vision and roadmap for reducing greenhouse gas emissions, promoting adaptation, and increasing climate resilience in Los Alamos County.

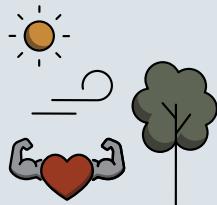
² [Los Alamos Resiliency, Energy and Sustainability Task Force Final Report \(2022\)](#)



Benefits of Climate Action

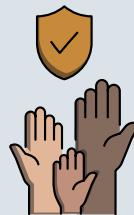
Taking action on climate change can bring benefits for Los Alamos County ecosystems, residents, and businesses. By doing our part, we can protect our local ecosystems and enhance our quality of life.

Improved quality of life & public health



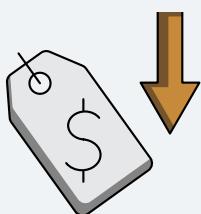
Climate action can contribute to our collective health and wellbeing through clean air, clean water, and a healthy environment.

Resilient community



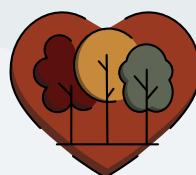
Climate action can enhance our community's ability to withstand and recover from environmental challenges by adopting sustainable practices.

Cost savings



Climate action can save money by reducing waste, being smart with energy and water use, planting native landscapes, and driving less.

Environmental preservation



Climate action can help protect our local ecosystems, wildlife habitats, and natural beauty by conserving resources and reducing pollution.

Global Benefits



The benefits of local climate action and adaptation go beyond the Los Alamos community, and can have a positive impact across the globe. Our emissions may be a small percentage globally, but being a leader in climate action can make a big difference. By doing our part and taking action, we can show other communities what's possible, and encourage them to do the same!

Building on Existing Work

This Climate Action Plan builds on notable work and accomplishments already underway and completed by the County and community. The 2024 Los Alamos Strategic Leadership Plan includes “environmental stewardship” as one of its five goals, which prioritizes natural resource protection, greenhouse gas reduction, carbon-neutral energy supply, water conservation, and waste management—all of which play a role in the CAP strategies and actions in this document.

 	The County provided free public transportation; launched recycling and reuse programs; began pursuing carbon-free power and water and energy conservation campaigns; set a goal to be a carbon neutral electric provider by 2040; and committed investments in multi-use trails.
2020 	A group of concerned residents submitted a petition to County Council requesting action on climate change.
2022 	The LARES Task Force was created and developed recommendations for climate action, including developing a greenhouse gas inventory and CAP and hiring designated staff.
2022 	The County hired dedicated Sustainability manager.
2023 	The County committed funds to develop an initial CAP and greenhouse gas inventory.

This CAP covers a wide range of environmental and climate-related topics and will require collaboration across County departments and groups. Existing plans and initiatives that this work will build on and interact with include the following:

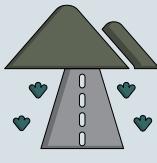
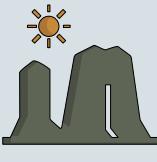
- Los Alamos County Comprehensive Plan (2016)
- Los Alamos Long-Range Water Supply Plan (LRWSP) (2018)
- Los Alamos Integrated Resource Plan (IRP) (2022)
- Los Alamos Resiliency, Energy, And Sustainability (LARES) Report (2022)
- Los Alamos Energy & Water Conservation Plan (2022)
- Los Alamos Strategic Leadership Plan (2023/2024)
- Los Alamos Short-Range Transit Plan (2023)

Focus Areas and Goals

This Climate Action Plan lays out a roadmap for achieving the community's climate goals. Specifically, the strategies and actions contribute to this vision through two primary pathways:

- **Mitigation:** Reducing greenhouse gas emissions from Los Alamos County government and community member activities (carbon neutral electricity provider by 2040 and carbon neutral community by 2050).
- **Adaptation & Resilience:** Increasing Los Alamos County government and community resilience to climate change impacts such as drought, flooding, wildfire, and extreme heat.

The Climate Action Plan is organized into six primary focus areas, which each aim to support one or both of the primary pathways described above:

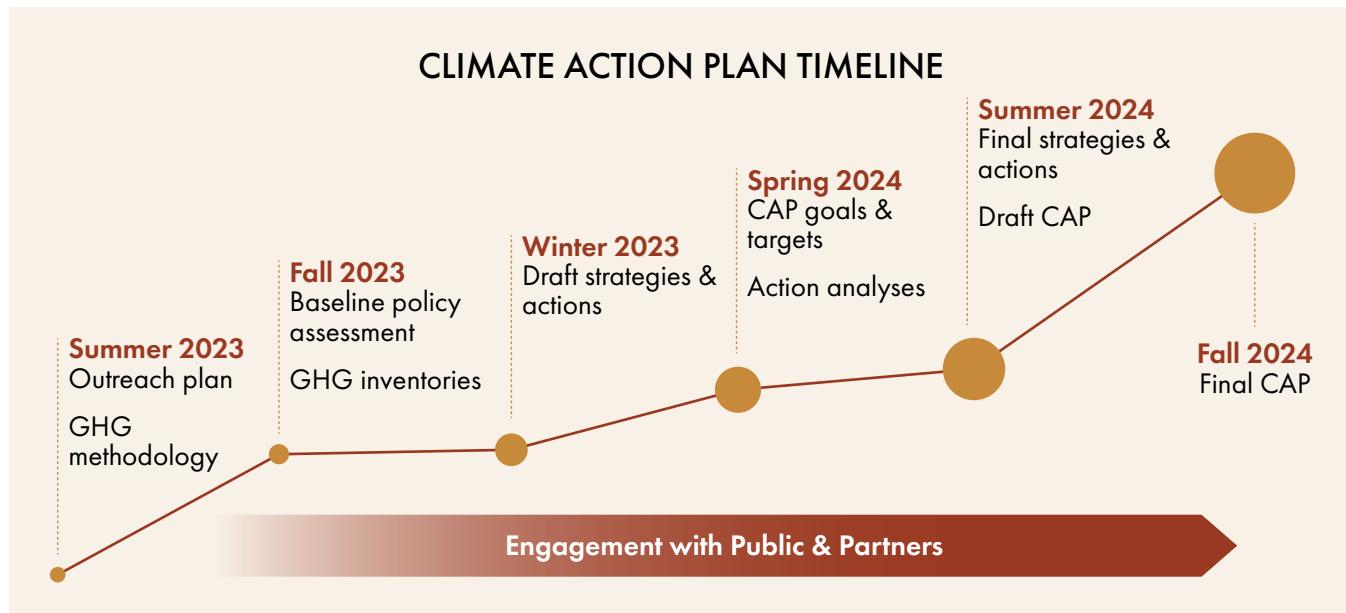
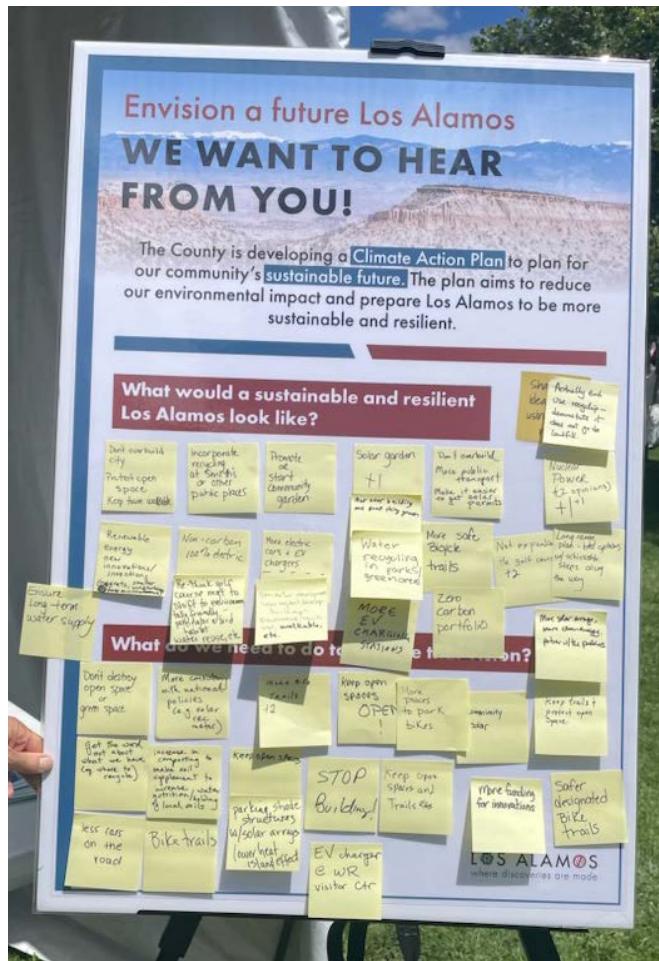
	<h3>Buildings & Energy</h3> <p>Reduce greenhouse gas emissions from buildings through energy efficiency, electrification, and transitioning to renewable energy sources.</p>
	<h3>Transportation & Land Use</h3> <p>Reduce greenhouse gas emissions from transportation and improve community mobility through sustainable land use planning, accessible multimodal transportation options, improved cycling and pedestrian networks, and expanded electric vehicle infrastructure.</p>
	<h3>Materials & Consumption</h3> <p>Reduce community waste generation and the greenhouse gas emissions associated with the consumption and disposal of goods and materials.</p>
	<h3>Natural Systems & Water Resources</h3> <p>Conserve water resources and increase urban green space to improve climate resiliency, protect vital habitats, ecosystems, and natural resources, improve local carbon sequestration, and enhance community green spaces.</p>
	<h3>Climate Resilience, Adaptation, & Wellbeing</h3> <p>Ensure that residents are prepared for climate impacts and enhance climate action education and programs.</p>
	<h3>Cross-Cutting</h3> <p>Reduce community-wide greenhouse gas emissions and inspire climate action through outreach, engagement, partnership, and leadership.</p>

How it Came Together

This CAP is built on several key steps and analyses, including:

- A baseline policy assessment
 - Greenhouse gas inventories strategy and action development and refinement
 - Greenhouse gas (GHG) and action modeling
 - Target setting

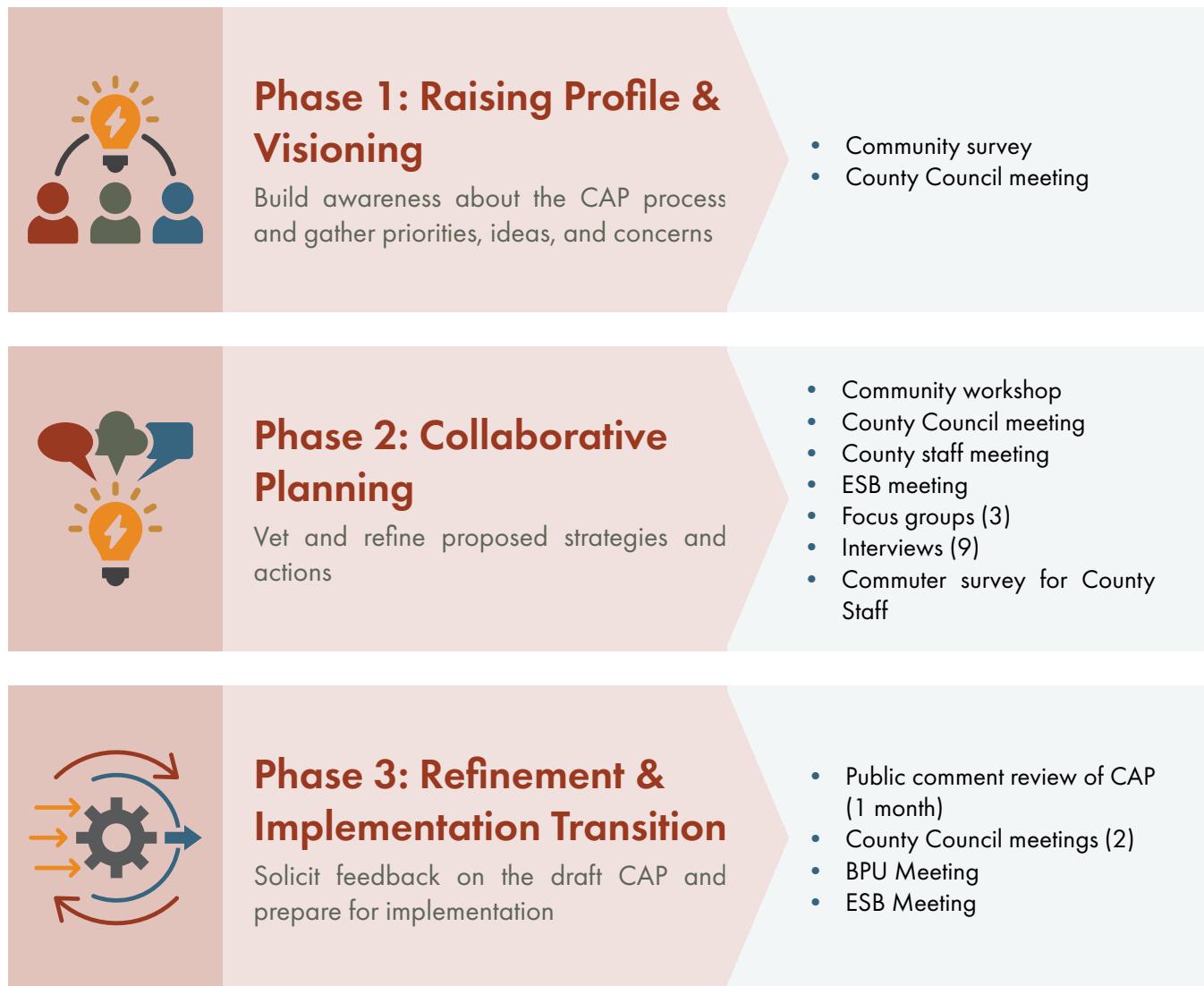
Throughout the process, community engagement helped to shape the CAP's priorities and actions.



Community Engagement

For this CAP to be effective, it needs to reflect the values and priorities of the community. Throughout the CAP process, the County engaged with community members and partners to gather input and feedback about the CAP. The process included the following key phases:

Throughout this process, the planning team sought to integrate racial equity and inclusivity. For example, the County



provided a diversity of engagement options, tracked participation demographics, and supported both in-person and virtual attendance to accommodate those with scheduling or transportation limitations.

What We Heard

In the community survey, community workshop, focus groups, and individual interviews, residents and community members shared their priorities, support, and concerns about climate action in Los Alamos. The views expressed on this page reflect what we heard during community engagement but do not necessarily reflect the entire community's opinions. Some key themes from this engagement are summarized below.



There are many energy inefficient buildings in the community, both commercial and residential. There is support for improving energy efficiency in buildings, and there is a need for financial assistance for families to reduce energy consumption, especially in older buildings.



Lack of affordable housing in the area is a significant challenge, leading to more commuters and overall transportation challenges. People expressed frustration with traffic and the number of commuters coming into the area, both from a safety and pollution perspective, and supported expanding and promoting sustainable transportation options.



Residents and community members expressed concerns about the cost of climate action, including the worry that CAP actions may not be economically viable and could pose challenges for some families and businesses. People also voiced concern over the feasibility of plan implementation and identified the need for budget and infrastructure improvements to effectively implement CAP actions.



Water scarcity is top of mind for many community members. People expressed support for protecting green spaces and natural ecosystems and practicing water conservation.



The community generally supports a transition to carbon free energy sources.



Community members voiced support for prioritizing education and engagement, supporting economic development, and practicing sustainable waste management.

Ideas, concerns, and feedback gathered through community engagement helped to shape the overarching goals and specific details of CAP actions.

"Decarbonize the electric utility. Quit installing natural gas infrastructure in new construction."

"Biking is my primary mode of transportation and I would love to be able to explore more of what Los Alamos has to offer with the convenience of my bike."

"Continue to make the central business district more walkable."

"I save water in the house from running water to get it hot for dishwasher and shower and use it to water outdoor and indoor plants."

"We want economically feasible solutions."

“



Strategy and Action Development

The strategies and actions in this Climate Action Plan aim to address Los Alamos' major emission sources and projected future climate impacts. The following process was used to develop the CAP actions:

- **Develop initial set of actions.**

An initial set of actions was developed based on the GHG inventory results, the county's unique context and staff input, current best practices and best available science, peer jurisdictions, local and regional resources, and community priorities.

- **Refine actions through staff feedback and qualitative analysis.**

The initial action list underwent several rounds of County staff and Environmental Sustainability Board (ESB) member review to vet, revise, and prioritize actions. To further refine the list of actions, actions were evaluated through a multi-criteria analysis based on impact, cost, equity, and co-benefits. This qualitative analysis highlighted the CAP actions that scored well across categories, as well as actions that needed further strengthening. Based on the qualitative analysis and feedback received from the County, approximately 40 actions moved forward for County Council and community member feedback.

- **Conduct quantitative analyses on a short list of actions.**

The County conducted a cost-benefit analysis on eight actions, evaluating implementation and ongoing costs of actions, relying on published scientific literature, case studies, expert opinion, and County staff input to determine approximate costs. This cost-benefit analysis was conducted for both the County and community, which helped to understand the cost savings potential for the community. The team also performed a quantitative GHG impact assessment and wedge analysis, which provided an estimate of the emission reductions associated with key actions to provide a defensible plan for meeting the County's emission reduction goals. Not all actions were modeled, because some were not readily quantifiable, may have resulted in inconsequential GHG emission reductions, or may have more indirect benefits. Results from the cost-benefit analysis and impact assessment are detailed in [Appendix I. GHG Reduction Strategies Quantification Methodology & Findings](#).

- **Finalize actions through Council and community input.**

The Los Alamos community and County Council reviewed the results of the qualitative and quantitative action analyses and provided feedback on the vetted action list through a community workshop and County Council meeting.

What about costs?

Throughout the community engagement process, residents and partners consistently voiced concerns and questions about the costs of climate action. Cost considerations informed the development of strategies, actions, and the overall CAP.

- CAP actions were designed to minimize cost burdens on residents as much as possible. This includes providing resources and education about financial incentives and limiting mandates to ensure community members are not burdened with new costs. As mentioned above, multi-criteria analysis of proposed actions included equity and community costs as criteria, which further supported the CAP's goal of limiting additional financial burdens for community members.
- To better understand the costs associated with select actions, the County commissioned cost analyses for a subset of proposed climate actions. These analyses considered costs to the community, costs to the County, and potential cost savings. For example, the analysis looked at the construction costs, available tax incentives, and energy cost savings associated with green building standards and found that these standards can result in a net cost savings of more than \$500 per year per home. See [Appendix I. GHG Reduction Strategies Quantification Methodology & Findings](#) for details on these analyses.
- There is substantial funding available for climate action, with a variety of federal and state grants and incentives designed to support building retrofits, EV charging infrastructure, and other climate and sustainability initiatives. For some examples of funding resources, see the "[Funding and Education Resources](#)" section.
- Although climate action can be costly, the costs of inaction can be even greater.^{3,4} These costs—though difficult to quantify precisely—include both economic and social costs, such as from infrastructure and property damages from extreme weather events, rising energy costs due to more extreme temperatures, impacts on food and water security, and impacts on physical and mental health. These impacts disproportionately affect overburdened communities on both a local and global scale; overburdened communities may include people who are Black, Indigenous, Hispanic or Latino, people of color, people with low or no income, unhoused individuals, elders and youth, immigrants, people with disabilities, people with limited English proficiency, and other identities who face current or historic inequities. The costs of climate action need to be discussed alongside the costs, risks, and impacts of inaction.

3 [Climate Policy Initiative: The Cost of Inaction \(2024\)](#)

4 [Deloitte research reveals inaction on climate change could cost the world's economy US\\$178 trillion by 2070 \(2022\)](#)



Cost estimation of select climate actions

To better understand the costs of climate action, the planning team conducted a more detailed quantitative cost analysis of select actions for consideration in the draft Climate Action Plan. The planning team prioritized analysis of actions anticipated to be higher cost, cost-effective to the community, and/or implemented in the near-term. The analysis considered both anticipated costs to the community (residents, businesses) and costs to the County government. Costs and benefits were considered over the full lifetime of action implementation, from 2025 to 2050.

The cost analyses also considered the following:

- Future rates of inflation
- Discount rate (i.e., a dollar received today has more value than a dollar received later)
- County labor costs (i.e., additional County staff needs)
- Energy and fuel costs and savings
- Upfront costs for new infrastructure, equipment, or retrofits
- Available tax incentives and rebates

- Avoided costs of climate damages (using the social cost of carbon, a value representing the cost of long-term damages caused by each ton of CO₂ emitted into the atmosphere)

Costs were summarized in present values (PV) to allow for an apples-to-apples comparison across action implementation timeframes. Findings from the cost analysis, summarized in the table below, suggests that the average net present value (NPV) community cost of implementing select draft CAP actions is equivalent to about \$3 per resident per year (\$68 over the 25-year implementation timeframe). Community costs are largely driven by current and projected electricity and natural gas energy prices. These costs are largely offset by savings from available rebates and incentives and anticipated reductions in energy consumption/costs. Note that, while the values appear precise, they represent estimates with a margin of error and more detailed cost-benefit analysis should be pursued prior to budgeting and implementing an action.

Net costs associated with modeled actions (negative values are shown in parentheses and are net cost savings). Note that many modeled actions are represented in this final CAP, but other actions underwent changes between performing this analysis and finalizing the CAP, so not all modeled actions match with the final CAP actions.

Action	NPV Costs to Gov't	NPV Costs to Community	Total NPV Costs	Public Benefit (PV Avoided Climate Costs)	Net Public Cost (NPV)	Per-Capita NPV Community Costs
Incentivize electrification retrofits	\$166,971	\$25,682,186	\$25,849,157	(\$5,850,484)	\$19,998,673	\$1,294
Adopt green building standards	\$593,664	(\$14,446,531)	(\$13,852,867)	(\$8,298,132)	(\$22,150,999)	(\$728)
Establish an energy benchmarking program for municipal buildings	\$1,402,718	\$0	\$1,402,718	(\$944,586)	\$458,132	\$0
Develop EV infrastructure plan	\$895,346	(\$37,445)	\$857,901	(\$624,417)	\$233,483	(\$2)
Transition County fleet to EVs	(\$1,974,747)	\$0	(\$1,974,747)	(\$3,613,425)	(\$5,588,173)	\$0
Expand non-motorized transportation options and accessibility	\$17,146,368	\$198,802	\$17,345,170	(\$24,477)	\$17,320,693	\$10
Develop a CTR program	\$447,518	\$0	\$447,518	(\$195,949)	\$251,569	\$0
Support the local food system	\$372,931	(\$578,890)	(\$205,959)	\$0	(\$205,959)	(\$29)
Total	\$19,050,768	\$10,818,122	\$29,868,891	(\$19,551,471)	\$10,317,419	\$545
Average	\$2,381,346	\$1,352,265	\$3,733,611	(\$2,443,934)	\$1,289,677	\$68

For more details, contact the county; the analysis workbook in Excel is available upon request.

How Climate Change is Impacting Los Alamos

Los Alamos County—along with communities around the world—is already experiencing the impacts of a changing climate. The state and county have experienced increased frequency and size of wildfires, extreme precipitation and flooding events, and extended drought periods,⁵ which will continue to impact different sectors, including transportation systems, buildings and energy, ecosystems, human health, and the local economy. Climate impacts can threaten the safety, health, and wellbeing of residents, particularly vulnerable populations such as low-income residents, the very young, and the elderly; this CAP aims to build and strengthen resilience to climate impacts.

Wildfire and Air Quality



Higher temperatures and drought are likely to increase the severity, frequency, and extent of wildfires, which could harm property, livelihoods, and human health.



Wildfires are likely to make air quality unhealthy, especially affecting those with asthma and other health complications. Wildfires also impact drinking water supplies through contamination.



Wildfire and higher temperatures will also stress urban forests and expose them to greater risk of disease outbreaks and mortality.



Extreme Precipitation and Flooding

In New Mexico, climate change is likely to reduce precipitation while increasing the intensity of extreme precipitation events and likelihood of rain versus snow. This shift will increase the risk of flooding on soils hardened by drought and altered by wildfires.



Flooding and extreme precipitation events may damage transportation routes, affect energy systems such as power lines, impact ecosystems and groundwater resources, and disrupt emergency response services.



Drought and Water Systems

Climate change is projected to exacerbate drought conditions in the southwest, leading to water scarcity and challenges with providing water services, protecting water quality, and preserving healthy ecosystems.⁶

Projections indicate a 25% decrease in surface water runoff and groundwater recharge over the next 50 years, affecting agriculture and ecosystems across New Mexico.⁷



Extreme Heat

Average temperatures in New Mexico will likely rise, leading to more frequent and extreme heat waves. Annual average temperatures across New Mexico have risen by about 3 degrees F over the last 5 years.⁸



More frequent and intense heat waves in the state will strain electricity systems and increase the demand for energy, which can lead to brownouts and power outages. Existing health conditions may lead to higher susceptibility to heat-related illnesses.

⁵ [Climate Change and the Los Alamos National Laboratory: The Adaptation Challenge \(2015\)](#)

⁶ [New Mexico Climate Risk Map](#)

⁷ [New Mexico Climate Adaptation and Resilience Plan \(2024\)](#)

⁸ [New Mexico Earth Matters: New Mexico's Climate in the 21st Century: A Great Change is Underway \(2020\)](#)

Greenhouse Gas Emissions

Greenhouse gas emissions inventories quantify a jurisdiction or entity's GHG emissions within a set period of time (typically a calendar year). Understanding the sources and magnitude of GHG emissions helps jurisdictions more effectively plan to reduce those emissions.

Different types of GHG emissions inventories apply different lenses to emission sources, thus measuring overlapping but slightly different sources of GHG emissions. Los Alamos County conducted three GHG emissions inventories as part of the CAP process:



Community-wide sector-based

Estimates emissions produced by actions from residents, visitors, schools, County operations, and businesses within the county's geographic bounds.



County operations sector-based

Estimates emissions produced by County-owned and -operated facilities and activities.



Consumption-based

Estimates emissions associated with the consumption activity of all households of a geographic area.

The County chose to conduct these three inventories to gain a broader understanding of Los Alamos' emissions. Each inventory estimates slightly different sources or scopes of emissions, with some overlap between inventory types, which are described in the following sections.

Most of the CAP actions aim to address emissions from the community-wide sector-based inventory—emissions that occur within the county's geographic bounds and over which the County and community have the most direct control. Though the County has less control over the emissions quantified in the consumption-based emissions inventory (CBEI), the CBEI can expand our understanding of our household-level emissions and avenues to reduce them.

The results from the three GHG inventories are summarized in the following sections. For more details on inventory methodologies and results, see [Appendix A. Sector-Based GHG Emissions Inventory Report](#) and [Appendix B. Consumption-Based GHG Emissions Inventory Report](#).



Sector-based Community-wide GHG Emissions

Los Alamos County completed a community-wide greenhouse gas emissions baseline study using a 2022 inventory year to inform development of this Climate Action Plan.

The community-wide sector-based emissions inventory accounts for emissions that are produced by actions from Los Alamos County residents, visitors, schools, County operations, and businesses. As much as possible, Los Alamos National Laboratory's (LANL) emissions are not included in the community-wide total, but its emissions impact on the community is considered for informational purposes within the study. In 2022, LANL reported emitting approximately 405,186 MTCO₂e.⁹

In 2022, Los Alamos County's community produced an estimated 137,670 metric tons of carbon dioxide equivalent (MTCO₂e), equating to approximately 7 MTCO₂e per-capita.¹⁰ The largest contributors to emissions were community building energy consumption and transportation. For comparison, the United States average GHG emissions in 2022 were 19.1 MTCO₂e per capita.¹¹



⁹ [Goals & Progress | Environmental Sustainability \(lanl.gov\)](#)

¹⁰ Based on a population of 19,187 (U.S. Census 2022 estimate).

¹¹ "Based on the US EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2022, which indicates total emissions of 6,343.2 MMTCO₂e. The U.S. Census estimates a January 1, 2022 U.S. population of 332,403,650. Note that U.S. GHG inventory may include sectors and emissions sources not included in the Los Alamos County GHG inventory, such as upstream emissions associated with energy production, so this is not an exact apples-to-apples comparison."

Sector-based County Operations GHG Emissions

Los Alamos County also completed a County operations greenhouse gas emissions baseline study using a 2022 inventory year. The County operations emissions inventory accounts for emissions that are produced by County-owned and -operated facilities and activities.

County operations were responsible for an estimated 15,031 MTCO₂e in 2022. County operations emissions are not in addition to, but part of community-wide emissions, because County buildings, facilities, and activities generally occur within Los Alamos' geographic bounds. The largest contributors to emissions were transportation and County facility building energy consumption.



Consumption-based Community-wide GHG Emissions

Lastly, Los Alamos County completed a consumption-based emissions inventory (CBEI), estimating the greenhouse gas emissions associated with the household consumption of all residents, including upstream emissions—emissions produced during the production and transportation stages of a product or service.

These emissions are broken out into five categories: transportation (including driving and air travel), housing (including home construction and household energy use from electricity and natural gas), food (including meat, dairy, fruits and vegetables, cereals and bakery products, and other foods), services (including healthcare and education), and goods (including furnishings and appliance and other miscellaneous goods).

In Los Alamos County in 2022, the typical household was responsible for roughly 47 MTCO₂e annually, or about 20 MTCO₂e per person (for comparison, the national average is slightly lower at about 42 MTCO₂e per household annually). With 7,999 households in the county, this is a total of roughly 374 thousand MTCO₂e in 2022 attributable to residents of Los Alamos County. In contrast, the community-wide inventory totaled only 135,997 MTCO₂e. Los Alamos County's consumption-based emissions are nearly three times greater than its sector-based emissions because the CBEI encompasses upstream emissions, which are not included in sector-based inventories.

Within the categories shown in the figure to the right, the largest sub-categories of gasoline, healthcare, and natural gas comprised nearly 44% of emissions.

Los Alamos County's household consumption is driven by a variety of factors, including high household income, high vehicle ownership, and high educational attainment. While local data is used to estimate consumption levels, the emissions associated with this consumption are based on national data. For more details about the CBEI methodology and results, see [Appendix B. Consumption-Based GHG Emissions Inventory Report](#).

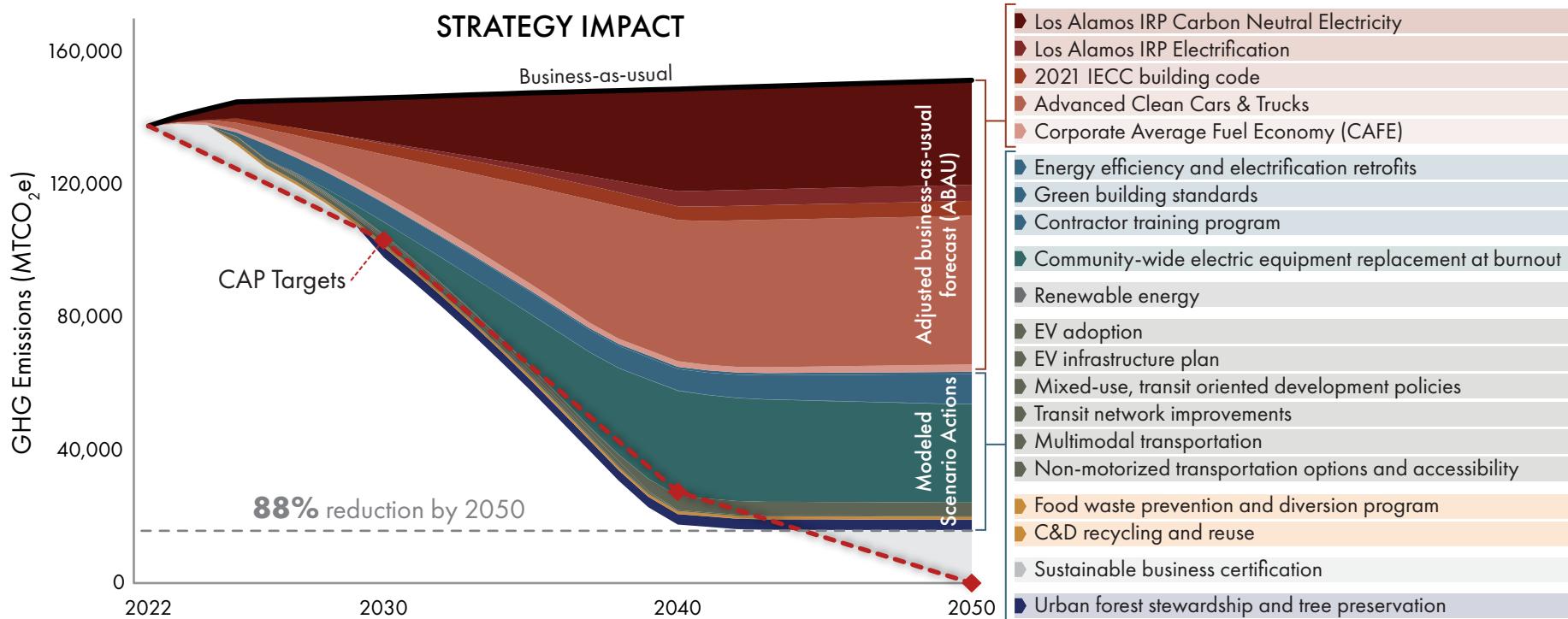


Emission Reduction Targets

Los Alamos County has established the following GHG emission reduction targets compared to 2022 sector-based community-wide baseline emissions levels:

- 30% reduction by 2030.
- 80% reduction by 2040.
- Carbon neutral by 2050.

These ambitious targets— informed by detailed quantitative analysis, comparison to peer jurisdictions, and consultation with the Los Alamos County community and leadership— are consistent with the Intergovernmental Panel on Climate Change (IPCC) recommendations for avoiding the worst climate change impacts.



The need for climate action

Based on the community-wide GHG inventory, if no action is taken to address climate change, population and economic growth are anticipated to increase GHG emissions 10% by 2050. However, existing local, state, and federal climate policies are expected to reduce emissions by 54% by 2050 compared to 2022 levels.

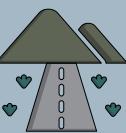
Local action is needed to achieve further emission reductions. The actions modeled here would reduce community-wide emissions by 88% by 2050 compared to 2022 emission levels. The remaining 12% reduction would rely on additional federal and state action, technological innovations, regular evaluation of Los Alamos' progress, and consideration of other tools and options beyond actions discussed in this CAP, such as researching and purchasing carbon offsets or implementing regulatory measures.

This Climate Action Plan aims to encourage progress toward our climate goals through programs, partnerships, and other mechanisms, described in the Strategies and Actions section on the following pages.



Strategies and Actions

The strategies and actions on the following pages aim to reduce GHG emissions and increase resilience to climate change impacts. The action list is organized by the following focus areas and strategies:

	Buildings & Energy <ul style="list-style-type: none">• Increase building efficiency and decarbonization• Increase renewable energy generation
	Transportation & Land Use <ul style="list-style-type: none">• Expand EV infrastructure and adoption• Expand and promote multi-modal connectivity and sustainable land use planning
	Materials & Consumption <ul style="list-style-type: none">• Maximize waste diversion• Implement Zero Waste Strategy
	Natural Systems & Water <ul style="list-style-type: none">• Increase urban green space• Conserve water resources
	Community Resilience, Adaptation, & Wellbeing <ul style="list-style-type: none">• Enhance community understanding of climate change• Prepare the community for climate impacts
	Cross-cutting <ul style="list-style-type: none">• Encourage sustainable businesses• Promote climate education outreach

Each focus area section outlines the goal for the focus area, how the actions build on existing work, the strategies, and potential co-benefits. Co-benefits are benefits or positive outcomes that result from action implementation in addition to the primary goals of reducing emissions or building resilience; for example, better air quality would be a co-benefit of reducing gasoline-powered vehicle travel. The County will take the lead on implementing the action, however the scope of the action is identified by the following icons:



Community



County government operations



Both community and County operations



Buildings & Energy

GOAL: Reduce greenhouse gas emissions from buildings through energy efficiency, electrification, and transitioning to renewable energy sources.

Greenhouse gas emissions (2022)



55% of community-wide emissions result from the use of electricity and natural gas

Co-benefits:

- Public health and reduced indoor air pollution
- Quality of life and home comfort
- Energy security and lower energy bills
- Green jobs and local economic development
- Water conservation

Strategies

BE1. Increase building efficiency and decarbonization



BE2. Increase renewable energy generation.



Strategy BE1: Increase building efficiency and decarbonization



BE1.1: Establish an energy benchmarking program for commercial buildings

Establish benchmarking criteria to track building energy and water performance in commercial buildings, including offices, restaurants, hotels, and other business facilities. Educate building owners on potential cost benefits of efficiency upgrades where necessary. Offer education and promote existing incentives. Encourage commercial customers to share data to promote energy efficiency improvements.



BE1.2: Establish an energy benchmarking program for County-owned buildings

Establish benchmarking criteria to track building energy and water performance in County-owned and -operated buildings using the EPA ENERGY STAR Portfolio Manager Tool. Perform ROIs to build the case for necessary efficiency upgrades in municipal buildings. Earmark recurring funding to support efficiency upgrades of County buildings. Monitor smart meters for gas, water, and electricity currently in place in all relevant County facilities, including buildings and light posts. Create a dashboard to track building performance for all County facilities and consider creating a public dashboard so the community can see improvements in energy efficiency.



BE1.3: Encourage energy efficiency and electrification retrofits

Develop a community-wide energy efficiency and electrification outreach and educational campaign. The campaign should: promote existing incentives and funding sources, especially for low-income households; focus on cost savings and public health benefits for residents, business, and landlords; and provide information about specific retrofits (e.g., weatherization, energy efficient appliances, LED lighting, electric hot water heaters, space heaters, stoves, laundry dryers). As part of the campaign:

- Market DPU's "Induction Cooktop Loaner Program."
- Develop and provide free home energy audits.
- Teach residents how to engage in decision-making regarding the ownership, generation, storage, distribution of, and transition to renewable energy.
- Provide information on available funding for all residents and share what incentives are available to relieve the financial burden for low-income residents. Notify the community when new funding opportunities become available through resources such as the County website, utility bill inserts, and pamphlets and brochures distributed at County events.
- Stay up to date on future clean energy financing options for low-and-moderate income households, such as through the New Mexico Climate Investment Center.

Buildings in Los Alamos County are generally older, which can be less energy efficient than newer buildings. This action would reduce GHG emissions and improve energy efficiency in those older buildings. In addition, New Mexico has one of the highest poverty rates in the country, and low-income households often struggle to pay for utilities and fuels used to power their homes and vehicles; this action—and plan in general—was developed with equity as a top priority. Making energy efficient improvements may reduce energy and cost burdens for residents and businesses.

What We Heard:

The community has many residential and commercial buildings that are energy inefficient. There are opportunities to both educate and incentivize building owners to make buildings more efficient.



BE1.4: Adopt green building standards

Promote fossil fuel infrastructure reduction in new residential, commercial, and municipal construction by adopting a green building performance standard (examples include the Santa Fe County HERS Rating and Seattle Building Energy Performance Standard). Educate the community on the cost and public health benefits this will provide for new buildings such as lower utility bills and improved indoor air quality. Plan to provide technical assistance, educational resources, and outreach during this transition, especially for commercial users of natural gas appliances such as restaurants and community centers.



BE1.5: Develop a training program

Identify, support, and/or develop free training programs and resources for local and regional contractors, design professionals, County staff (i.e., plan reviewers, building inspectors, and project managers), and interested members of the public to learn green building skills such as electrification, energy efficiency, and water efficiency retrofits, especially during low-construction times of year. Potential partners may include UNM-LA, NNMC, and Santa Fe Community College. Consider organizing a quarterly open house with contractors.



BE1.6: Require electric equipment replacement at burnout for County

Develop policies and programs that will result in replacement of fossil fuel appliances and equipment at the end of their useful life in County-owned and -operated buildings. Policies and programs should focus on major natural gas uses in County buildings, including space/water heating. As part of this work, the County will identify obstacles that could impede progress on electrification, such as needed infrastructure upgrades, and identify opportunities to address these barriers. Policy options include:

- Requirements for end-of-life replacement of gas-powered equipment in County buildings with efficient, electric equipment.



BE1.7: Encourage electric equipment replacement at burnout for community

Encourage replacement of natural gas appliances with electric before or as they approach the end of their useful life. Educate community members on how to prepare for replacement (e.g., through audits and appliance replacement plans). Educational programs should focus on major natural gas uses in buildings, including space/water heating, clothes drying, and cooking. As part of this work, the County will identify obstacles that could impede progress on electrification, such as needed infrastructure upgrades, and identify opportunities to address these barriers.

Strategy BE2: Increase renewable energy generation



BE2.1: Promote renewable energy

Support local and statewide standards for sourcing renewable energy generation and grid modernization. This may include:

- Continuing to work with DPU as all energy options are explored to best balance demand with public support and feasibility.
- Facilitating dialogue with DPU, solar energy providers, and community members to educate and highlight on the status of DPU's distributive generation program and the benefits of solar + battery and grid modernization moving forward.
- Advocating for the development of regional or statewide standards, policies, or resources that advance grid modernization including incorporating storage solutions to expand solar generation potential or providing financial assistance to offset infrastructure costs.

This action aligns with the County's Integrated Resource Plan, which recommends greatly increasing local solar generation and storage capacity.



BE2.2: Expand electric energy resiliency

Continue to expand electric energy resiliency by investing in a diverse set of renewable energy sources such as wind, solar, geothermal, and nuclear, as well as energy storage. Work with DPU staff to align with existing initiatives and increase energy resiliency for the community through the Integrated Resource Plan (IRP) and by providing redundancies within the circuit systems.

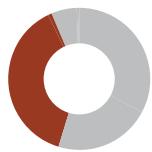




Transportation & Land Use

GOAL: Reduce greenhouse gas emissions from transportation and improve community mobility through sustainable land use planning, accessible multimodal transportation options, improved cycling and pedestrian networks, and expanded electric vehicle infrastructure.

Greenhouse gas emissions (2022)



38% of community-wide emissions

Co-benefits:

- Reduced outdoor air pollution
- Increased opportunities for active transportation
- Mobility options
- Affordable housing and housing security
- Cost savings on gasoline
- Reduced traffic injuries and accidents

Strategies

T1. Expand EV infrastructure and adoption.



T2. Expand and promote multi-modal connectivity and sustainable land use planning.



Strategy T1: Expand EV infrastructure and adoption



T1.1: Promote EV adoption

Encourage EV network expansion by educating the community on available tax incentives and rebates for EV purchases, with a focus on those available to low-income populations. Identify partners such as LANL and the school district to work together on fleet conversions to EVs.



T1.2: Develop EV infrastructure plan

Develop and implement an EV infrastructure plan that prepares the County and community for the transition to EVs by mapping infrastructure needs. Partner with the Los Alamos Department of Public Utilities, NMDOT, LANL, Los Alamos Public School, UNM-LA, and other organizations to develop strategies and identify barriers for EV readiness in key locations, including public spaces, schools, businesses, places of worship, and multifamily homes.

What We Heard: There is an increased interest in purchasing electric vehicles but also concern about not enough charging infrastructure to support growth.



T1.3: Promote EV readiness

Incentivize and educate about EV readiness for new and redeveloped single family homes. Encourage a certain number of EV chargers in multi-family housing, commercial developments, and community gathering spaces, including increased access for affordable housing units. This action builds on the County's existing incentives to reduce required parking spaces if a contractor includes EV charging infrastructure.



T1.4: Transition County fleet to EVs and reduce idling

Work with the County Fleet and Transit Divisions and EV Working Group to transition County vehicle fleet to EVs when replacing a fleet vehicle that has reached the end of its usable life, where feasible. When technology is not available, pursue transition strategies such as right-sizing or hybrid vehicles. Consider aligning with New Mexico state target to achieve a zero-emission vehicle fleet by 2035.

Concurrently, revise and implement a County operations "no idling" policy to reduce GHG emissions and air pollution associated with gasoline-powered vehicles. Develop and implement an educational campaign for County staff.

Strategy T2: Expand and promote multi-modal connectivity and sustainable land use planning



T2.1: Expand mixed-use, transit-oriented development policies

Continue to expand land use zoning standards and codes, such as changes to parking minimums, to promote affordable, transit-oriented, and mixed-use development to reduce urban sprawl. Encourage building within walking distance of essential services, when possible, and promote existing complete streets policies and Public Works Design & Construction Standards. Support existing County policies to maintain and increase housing options for all residents by engaging with non-profit service providers who oversee daily operations of affordable housing homeownership, rental, and rehabilitation programs. Affordable housing policies may include a "rent-to-own" policy, where a portion of rent is set aside as capital towards the down payment of a housing unit.



T2.2: Continue public transit education campaign

Partner with the media to continue education campaigns that educate on how to use public transit options, showcase transit connections to bike and pedestrian ways, and feature bus rider stories in an effort to combat fear and prejudice while highlighting advantages and accessibility. Build on Atomic City Transit's marketing plan to increase awareness of the transit opportunities that are available in Los Alamos and retain and attract customers. Continue to teach new riders how to use the Atomic City Transit app and bike racks in an effort to raise Atomic Transit ridership, which is currently low in the County.

What We Heard:
Community members support improved public transit systems and options.



T2.3: Advocate and partner regionally to improve transit network

Continue to work with partners such as Atomic City Transit, LANL, Los Alamos Public Schools, North Central Regional Transit District, and NM Park and Ride to advocate and engage in regional opportunities to improve the transit network to (1) ensure there are safe non-motorized connections to transit facilities, addressing first and last mile improvements, (2) expand transit access to neighborhoods that are not currently served by transit and to services, jobs, and activities for seniors, people with disabilities, and low-income residents, and (3) increase bike storage at transit centers. Reference the Transit Center Study to identify priority areas for County transit access, emergency services, and opportunities for regional transit collaboration. Use findings from the Transit Study to increase ridership, implement more micro transit options, provide incentives, and increase route frequency.



T2.4: Encourage multimodal transportation

Provide educational resources for commercial property owners and consider updating land use codes to increase bike storage options, preferred parking for carpools, and shared vehicles to promote multimodal transportation options. This action builds off of the Development Code's Parking Alternatives and Reductions section, which allows for reducing the parking requirements for commercial properties that have bike storage or repair facilities.



T2.5: Expand non-motorized transportation options and accessibility

Identify and implement projects from the 2017 Bicycle Transportation Plan, Trails and Open Space Management Plan, Bicycle Working Group, and Public Works to expand non-motorized transportation options and infrastructure to support biking, walking, and other means of non-motorized transportation. This includes projects to improve and create bike and walking infrastructure, especially in low-income and older neighborhoods, and invest in County-funded sidewalk improvement for safety and accessibility for all users, with a focus on those with limited mobility.

This action supports efforts currently underway, including the annual "Bike to Work" day, the 2024 Pedestrian Study, and the County's Bronze level Bicycle Friendly Community award.

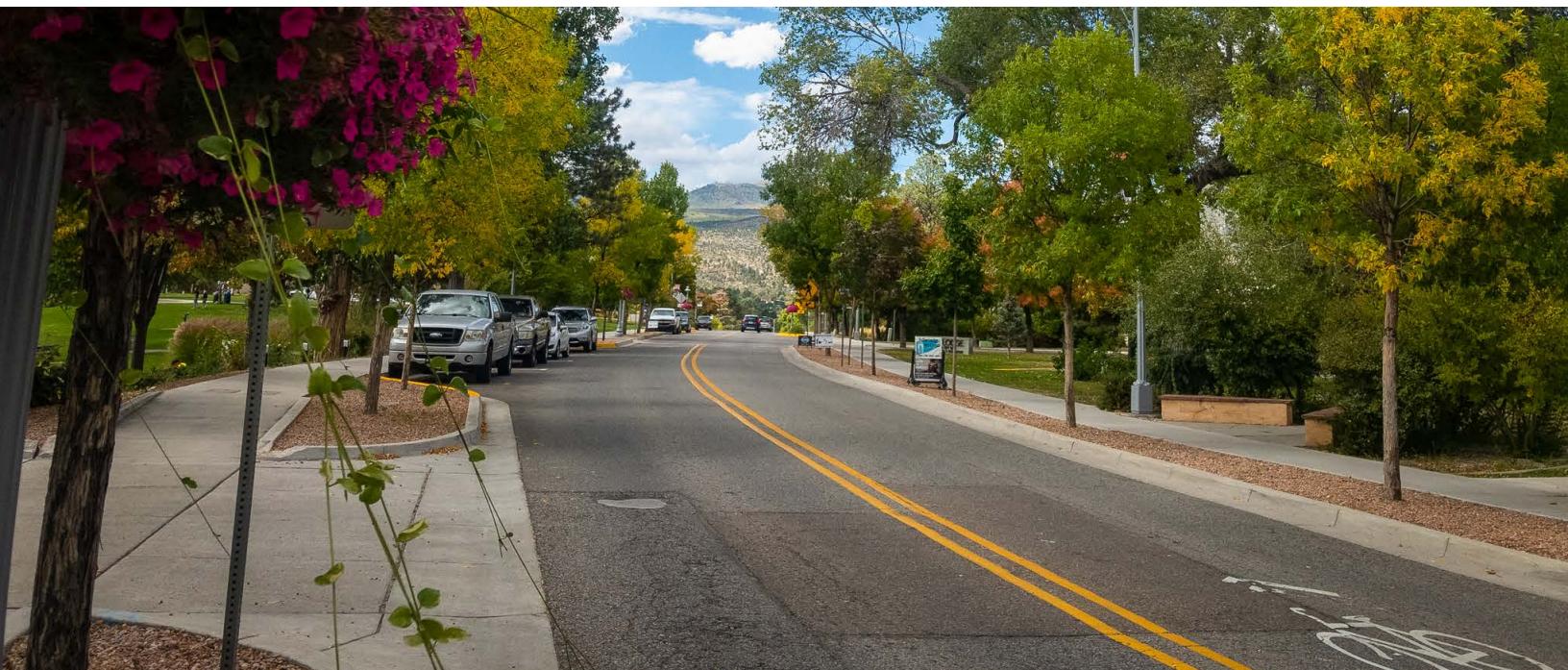
What We Heard: Many community members prefer bicycling to locations in the community. They want additional and better-connected trails, with a focus on safety.



T2.6: Develop a Commute Trip Reduction program

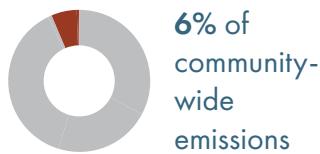
Develop a commute trip reduction (CTR) program for County employees that builds on the "Drive Less Los Alamos" Walk, Bike, Ride, Carpool Initiative, which may include:

- Continuing to provide resources on the Los Alamos County Trail Network, cycling safety measures, Atomic City Transit and Afternoon Express routes and schedules.
- Encouraging employees to utilize alternative modes of transportation when commuting to and from work.
- Continuing to expand flexible work options and remote and hybrid work, for applicable positions, through the Telework and Alternate Work Schedules program, including exploring options such as 4-day work weeks.
- Encouraging local employers to promote CTR, including collaborating with Los Alamos National Laboratory to develop a commuter program and explore flexible work options.





Greenhouse gas emissions (2022)

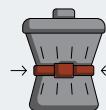


Co-benefits:

- Natural resource conservation
- Cost savings
- Food security
- Local economic development

Strategies

MC1. Maximize waste diversion



Materials & Consumption

GOAL: Reduce community waste generation and the greenhouse gas emissions associated with the consumption and disposal of goods and materials.

Los Alamos Highlights

The County has several existing initiatives aimed at reducing waste, including working to increase local business participation in the recycling program, decreasing the commercial recycling rates to incentivize more commercial recycling, and providing outreach and education to businesses about the benefits of recycling. The County has organized a glass drop-off recycle program since 2012, expanded the list of materials accepted in curbside mixed recycling in 2014, and recently opened a reuse center located at the Eco Station.

Environmental Services Division is set to launch a municipal food composting program for residents to drop off their food scraps for free at the Eco Station and curbside collection for commercial businesses. LARES also recommended several goals related to waste diversion, including strengthening the County's environmental purchasing policy and reducing consumption-associated greenhouse gas emissions through sustainable purchasing and consumption/disposal of goods and services. Current County waste and consumption goals and progress on goals include:

- Meet or surpass a municipal solid waste (MSW) recycling rate of 40% by 2020. As of 2024, the County recycling rate was 37% (including construction and demolition recycling).
- Achieve 75% diversion of construction and demolition (C&D) materials and debris (waste) by 2020. As of 2024, the County C&D recycling rate was 20%.
- Receive an excellent or good rating from at least 75% of respondents in a survey for quality of residential recycling services. As of 2022, 91% of respondents ranked the services as excellent or good.

Strategy MC1: Maximize waste diversion



MC1.1: Promote circular economy practices

Promote circular economy practices, programs, and policies. At the County level, implement an environmental purchasing policy—a policy promoting the procurement of products and services with lower environmental impacts—for all County government agencies and departments. As part of this, develop and define purchasing policy criteria and decision-making processes.

At the community level:

- Develop and support community reuse and repair programs, such as fix-it clinics, a community tool library, and local “buy nothing groups.”
- Support existing programs and resources like the Library of Things and the Los Alamos County Eco Station.
- Work in consultation with local businesses to promote local reuse centers and practices.



MC1.2: Expand and refine waste data tracking, reporting, and goals

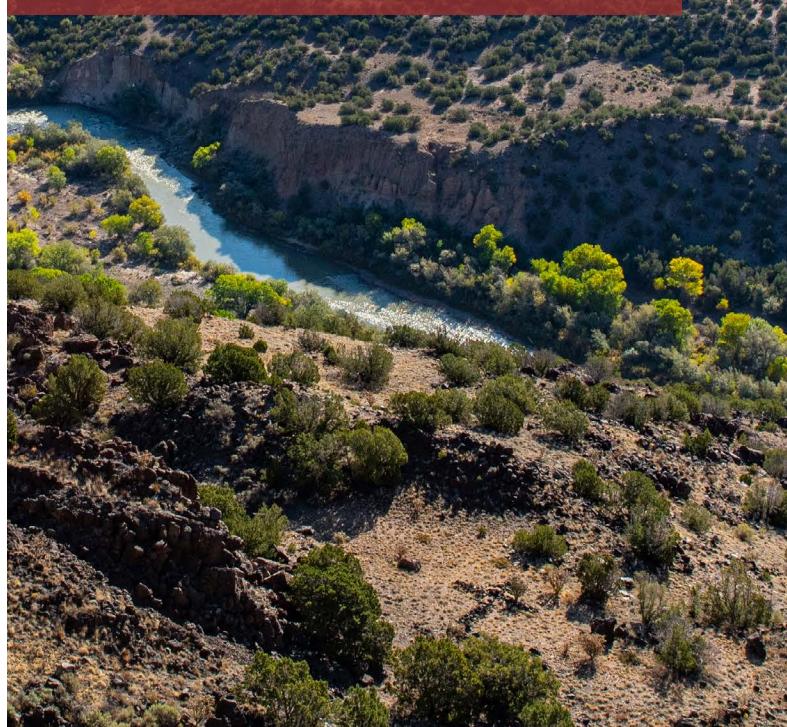
Building on current work, expand waste data tracking and reporting methods to establish new goals, including new zero waste targets, and a management plan for meeting those targets. This includes:

- Conducting and expanding the scope of future waste characterization studies to include additional sectors (commercial and multifamily) and waste streams (recycling and compost), as well as a more detailed material list for sorting.
- Updating the County’s current waste goals and targets to align with zero waste and source reduction priorities, including outlining specific actions and assessments needed to achieve these targets.

Zero Waste Strategy:

As part of this CAP process, the County conducted a high-level examination of Los Alamos County’s existing solid waste collection programs and services and waste stream tonnage data, including discussing goals with representatives of the County Environmental Services Division (ESD). This assessment resulted in a Zero Waste Pathway to summarize opportunities for the County to reduce waste and increase reuse by exploring zero waste strategies and actions.

A zero waste pathway is an ongoing, evolving set of practices to conserve resources and reduce burdens on communities and the environment by responsibly producing, consuming, reusing, and recovering materials. A zero waste jurisdiction will reduce unnecessary purchases of goods and services, promote reuse and repair markets, and implement strong systems to recover and recycle materials. Working toward zero waste of resources requires that the County both minimize waste generation and maximize waste diversion. To read the full Zero Waste Strategy, see [Appendix D. Zero Waste Strategy](#).





MC1.3: Implement food waste prevention and diversion program

Continue to establish and implement the municipal food composting program. In the short term, prioritize outreach on the new food compost program for high generators of food waste, and in the long-term, look to expand to curbside collection for residents and consider accepting and incentivizing compostable paper and other compostable packaging. Also consider:

- Facilitating a food waste prevention network between businesses, non-profits, and research institutions to develop systems and infrastructure to reduce food waste and foster connections between sources of unwanted food and communities in need.
- Partnering with local businesses, restaurants, grocery stores, and food pantries to raise awareness of edible food recovery programs.
- Building upon existing Zero Waste Los Alamos resources and education campaign that provides food shopping, prep, and storage techniques to reduce spoilage; recipes to reduce food waste; and messages on reducing waste.



MC1.4: Promote C&D recycling and reuse

Provide a construction and demolition (C&D) recycling, salvage, and deconstruction toolkit for construction professionals which includes how-to instructions, contact information for local service providers, and information on low-carbon and recycled building materials. Promote educational resources for building professionals through permit counter brochures, industry events, and industry publications. In the long-term, acknowledging the current limitations of local C&D recycling markets, consider a C&D recycling ordinance which requires that C&D project waste is minimized, reused, or recycled; or evaluate an incentivized approach by offering reduced rates for separating reusable C&D materials.



MC1.5: Conduct recycling and composting outreach and education

Build on existing programs to conduct commercial and residential education and outreach on recycling, composting, and waste management best practices, including identifying opportunities to expand programs. Initiatives may include:

- Commercial, single-family residential, and multifamily residential technical assistance program that offers recycling toolkits, welcome packets, online resources, and in-person outreach to help with waste prevention, recycling, composting, and sustainable purchasing, especially for new community members.
- Standardized waste collection systems for commercial and multifamily properties, including designated colors for collection bins for each waste stream, clear and consistent signage such as posters with "what goes where," and recommendations for front-of-house or public facing bins.
- Targeted commercial food scrap outreach that provides additional outreach for the largest generators (including hospitals, universities, and other institutions). Outreach should include information about known contamination issues that need to be addressed.

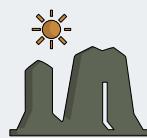


MC1.6: Implement the zero waste strategy

Implement all other recommendations outlined in the Zero Waste Strategy (ZWS) to continue to reduce the generation of waste and improve the focus to enhance waste reduction, recycling, and composting. Plan for mid- and long-term strategies and actions outlined in the ZWS which include but are not limited to:

- Promoting and expanding existing recycling services and programs, including evaluating curbside food scrap collection programs and increasing participation in refrigerant recycling programs.
- Investing in long-term programs that promote source reduction and alternatives to landfill, such as education and behavior change programs and research.





Natural Systems & Water Resources

GOAL: Conserve water resources and increase urban green space to improve climate resiliency, protect vital habitats, ecosystems, and natural resources, improve local carbon sequestration, and enhance community green spaces.

Co-benefits:

- Ecosystem health and habitat improvements and increases
- Public health – improved air quality and reduced urban heat
- Water conservation and water quality
- Quality of life and community aesthetics
- Reduced need for chemicals

Los Alamos Highlights

The Los Alamos Long Range Water Supply Plan (2017) and Source Water Protection Plan (2003) provide a foundation for improving water security during prolonged and intense drought periods in the county. The County's Water and Energy Conservation Program and Water Rule W-8 also aim to reduce potable water use and encourage management of reclaimed water. In addition, stormwater management is a key issue for the County and LANL, and the County has proposed actions to integrate low-impact development, natural systems, and permeable surfaces to reduce and filter stormwater runoff.

Los Alamos County has an internal policy on tree preservation and mitigation. Many of the pine tree species are under threat, necessitating additional measures to restore natural habitats and ecosystems.

Strategies

NS1. Increase urban green space.



NS2. Conserve water resources



Strategy NS1: Increase urban green space



NS1.1: Promote urban forest stewardship and tree preservation

Reduce the effects of extreme heat and promote healthy communities by increasing native, drought-friendly vegetation cover and enforcing the County's existing tree preservation and mitigation policy. Promote urban forest stewardship through an equitable and inclusive community tree planting and preservation program, focusing "greening" in areas with lower tree coverage and higher exposure to extreme heat.

In Los Alamos, many of the pine tree species are under threat from wildfire, drought and invasive pest species exacerbated by climate change, necessitating additional measures to restore and protect natural ecosystems.

Strategy NS2: Conserve water resources



NS2.1: Promote green stormwater infrastructure and low-impact development

Continue to invest in green stormwater infrastructure and incentivize low impact development (LID) projects by streamlining permitting processes, prioritizing vulnerable communities most impacted by extreme weather and climate impacts. Green stormwater infrastructure is nature-based infrastructure to address urban flooding and water quality issues, such as through rain gardens and bioswales. Green infrastructure provides more climate and health co-benefits than conventional "grey" infrastructure systems.

Stormwater management is a key issue for the community and LANL. This action builds on current County actions to integrate low-impact development, natural systems, and permeable surfaces to reduce and filter stormwater runoff.



NS2.2: Develop a water security strategy

Align with the The Los Alamos Long Range Water Supply Plan (2017) and Source Water Protection Plan (2003) to develop a water security strategy and drought preparedness plan to address water shortages and prepare for climate impacts. Promote collaboration and data sharing on water resources with other jurisdictions, and revise land use practices to conserve water in the county. Expand existing water conservation programs which encourage the community to reduce daily water use and educate residents on water sources and supply.

What We Heard:
Residents of Los Alamos know that water is a precious resource and are concerned about water availability in the future.



NS2.3: Encourage sustainable landscaping and water conservation

Reduce water consumption from landscaping by planting native and climate appropriate plants. Work with landscape companies and homeowners to educate drip irrigation and low pesticide management techniques. Support the Water and Energy Conservation Program and Water Rule W-8 to reduce potable water use and encourage management of reclaimed water.



NS2.4: Provide greywater reuse education

Promote greywater systems for residents, including providing free rain barrels to homeowners to capture and reuse rainwater. Develop new educational programs for the community on the environmental and financial benefits of reusing rainwater and greywater. Continue and investigate expansion of greywater programs and uses, building on the County's current programs.



Community Resilience, Adaptation, & Wellbeing

GOAL: Ensure that residents are prepared for climate impacts and enhance climate action education and programs.

Co-benefits:

- Public health and improved air quality
- Quality of life and home comfort
- Ecosystem health
- Water conservation and water quality
- Food security
- Local economic development

Los Alamos Highlights

The County's community resilience work will build on the County's 2023 Hazard Mitigation Plan and other external plans, such as the 2022 LANL Climate Change Vulnerability Assessment and Resilience Plan (VARP). These plans include measures to increase energy redundancy, protect critical assets from climate impacts, and promote nature-based solutions for resiliency. Community resiliency actions are also supported by sustainability leadership from businesses and community groups such as the Los Alamos High School EcoClub.

Los Alamos County Adaptation and Resilience Strategies

Los Alamos County is actively working to protect its community and environment from the impacts of climate change. For decades, the County has implemented a variety of adaptation and resilience strategies to ensure the health and well-being of our residents and our environment. This Climate Action Plan builds on existing efforts and establishes a roadmap for future developments.

1 Fire Prevention: Increasing drought conditions and rising temperatures leaves the County at higher risk of forest fires. To adapt to the changes in our environment, the Los Alamos Fire Department has implemented fire protection strategies such as developing a strategic Fire Mitigation Plan, maintaining defensible space around the community and educating the community on fire awareness.

2 Renewable Energy: Los Alamos County Department of Public Utilities (DPU) is striving to become a carbon free power provider by 2040 and recently invested in Foxtail Flats for 170MW of solar power and 80MW of battery storage. This new agreement in combination with our other renewable energy assets will help LAC move towards clean energy. In addition to creating clean energy, it also creates high paying, quality careers for New Mexicans.





Community Resilience, Adaptation, & Wellbeing

3 Water & Energy Conservation: The 2022 DPU Water and Energy Conservation Plan outlines strategic goals.

- 1 Be a carbon neutral electric provider by 2040.
- 2 Provide Class 1A effluent water in Los Alamos County.
- 3 Reduce natural gas usage by 5% per capita per heating degree day by 2030 and support elimination of natural gas by 2070.
- 4 Promote electric efficiency through targeted electric conservation programs.
- 5 Reduce potable water use by 12% per capita per day by 2030.
- 6 Communicate with partners to strengthen existing partnerships and identify new potential mutually beneficial partnering opportunities.

4 Waste Reduction: Los Alamos County promotes responsible consumption of goods and promotes the 3R's: waste reduction, reuse and recycling. The County provides a premier recycle facility, diverting valuable materials from the landfill through robust recycle and reuse program and pursuing a municipal food composting program.

By building on these existing efforts, Los Alamos County is taking practice steps to build a more resilient future for its residents and protect its environment.

Strategies

CR1. Enhance community understanding of climate change



5 Sustainable Transportation: The County operates Atomic City Transit, a free and safe public transportation system, and steadily invests in walking and bicycling infrastructure. Additionally, the County has invested in electric vehicles and charging infrastructure for County and community use.

6 Energy-Efficient Buildings: The County has committed to build all new buildings over 500sq ft with a LEED Silver Certification. Additionally, the County has recently adopted the 2021 IECC building standards that will result in more energy-efficient buildings.

7 Emergency Management: The County has a comprehensive emergency management plan for disaster preparedness, mitigation, response and recovery.

8 Community Engagement: The County is dedicated to providing ongoing education and outreach for the community to enhance awareness and knowledge of climate literacy, waste reduction, water and energy conservation, as well as providing resources and incentives to support climate-friendly actions.

CR2. Prepare the community for climate impacts



Strategy CR1: Enhance community understanding of climate change



CR1.1: Conduct a vulnerability assessment

Conduct a climate hazard vulnerability assessment to understand how extreme weather and other aspects of climate change will impact people, services, and infrastructure, particularly vulnerable populations. Identify vulnerable areas and populations and enhance equity-focused response in emergency planning to extreme temperature events, drought conditions, and wildfires.



CR1.2: Invest in public climate education campaigns

Invest in public education campaigns about climate resilience and mitigation solutions in partnership with Pajarito Environmental Education Center.

- Tailor campaigns to educate and empower vulnerable communities, which often experience the earliest and most acute impacts of climate change, face historic and current inequities, and have limited capacity to adapt.
- Share climate information through targeted community outreach to develop capacity to address sustainability issues.
- Encourage schools to incorporate sustainability related topics and consider partnering with the Los Alamos High School EcoClub.



CR1.3: Support the local food system

Continue to encourage and promote local food systems by:

- Supporting and promoting farmers' markets.
- Supporting and promoting community and backyard gardens through coordinated community education and regional collaboration.
- Collaborating with businesses and organizations such as LA Cares to provide resources and support for food security for all residents.

Strategy CR2: Prepare the community for climate impacts



CR2.1: Encourage adaptation upgrades

Solicit grants to offer rebates and incentives for eligible entities to encourage adaptation upgrades on residential and commercial properties (e.g., reducing paved areas to address runoff and heat, installing green roofs, permeable pavement, air filters, fans).



CR2.2: Embed climate adaptation and resilience in County operations

Embed climate adaptation and resilience across County operations. Review plans, policies, programs and operations with a climate adaptation and resilience lens.



CR2.3: Address and prepare for heat and other climate impacts

Address and prepare for heat and other climate impacts in Los Alamos; this may include:

- Incorporate extreme heat preparedness and response into the County's emergency management plan or consider developing an emergency heat response plan.
- Implement a neighborhood cooling program, including partnering with local nonprofits and organizations to provide resources and check in on vulnerable residents during extreme heat events.
- Implement County cooling centers for the community in collaboration with community partners.
- Based on the findings from the vulnerability assessment (CR1.1), develop and implement additional adaptation and resilience strategies.





Cross-Cutting

GOAL: Reduce community-wide greenhouse gas emissions and inspire climate action through outreach, engagement, partnership, and leadership.

Co-benefits:

- Local economic development
- Quality governance—improved and increased engagement, communication, and relationships

Los Alamos Highlights

This focus area builds on existing cross-cutting climate action. This includes: the Board of Public Utilities' commitment to becoming a net-zero electricity provider by 2040; the ESB's 2017 Sustainability Plan; and the County's hire of a dedicated sustainability manager to facilitate climate action plan development and provide ongoing outreach for the CAP. The LARES Task Force was also convened in 2020 after residents submitted a petition to Council requesting climate action by the County. Actions in this focus area build on the near-term work of the LARES Task Force to encourage forming partnerships with LANL and the Los Alamos Public Schools with the specific intention of collaboration on greenhouse gas reduction.

Strategies

CC1. Encourage sustainable businesses.



CC2. Promote climate education outreach.



Strategy CC1: Encourage sustainable businesses



CC1.1: Develop a sustainable business certification

Collaborate with local businesses and partners to develop and promote a certification program or labeling system that recognizes businesses that adopt sustainability measures such as energy efficiency, waste diversion, sustainable landscaping, and sustainable product sourcing. As part of the certification program development, define sustainability criteria and guidelines. Promote this program in conjunction with Los Alamos County Chamber of Commerce.

Strategy CC2: Promote climate education outreach



CC2.1: Facilitate equitable public participation in planning

In addition to providing robust and equitable education to help prepare vulnerable communities for climate impacts (CR1.2), actively seek input from marginalized or vulnerable populations in climate policy-making processes by expanding ESB membership. In Los Alamos, more vulnerable communities may include communities of color, low-income residents, older adults, and non-English speaking residents.



CC2.2: Monitor and share climate action progress

Consistently monitor CAP implementation progress through an online dashboard or website that provides climate action information and resources to community members, businesses, and partners. Provide annual progress updates to County Council and the ESB.



CC2.3: Collaborate with local Pueblos

Work with local Pueblos to share resources and ideas on climate change issues, and align with relevant plans such as the Pueblo de San Ildefonso Climate Action Plan. Support the County's efforts to build equitable partnerships with local Pueblos through the Progress through Partnering initiative, regional, or one-on-one projects to increase green workforce training offerings, clean energy access, transit, and public safety and wellbeing.



CC2.4: Expand community partnerships

Develop a working group with Los Alamos National Laboratory, local schools, and community-based organizations to encourage technology development and innovative solutions to addressing climate challenges.

What You Can Do

Everyone can contribute to helping solve the climate crisis—and ultimately, our community's impact will be measured as the sum of individual actions.

Here are some ideas for ways you can help reduce our community's emissions:



Transportation

Plan on buying an electric car for your next vehicle. In the meantime, explore the opportunities to get around without a car, whether that's biking, walking, taking the bus, or carpooling.



Housing

If you own your home, look at incentives and rebates for home electrification upgrades, such as heat pumps, induction stoves, and rooftop solar installation. If you're a renter, consider a portable induction cooktop.



Healthy Living

Eating more plant-based foods—such as fruits, grains, and vegetables—and reducing consumption of meat and dairy products not only helps reduce emissions, but it can often be good for your health, too. Regular exercise, such as walking or biking, can also help improve health while reducing emissions.



Flying

Air travel is uniquely damaging to the environment due to high-altitude pollution. Consider staying local or driving for your next vacation, or explore Amtrak's Southwest Chief line from Santa Fe or Albuquerque with service to Los Angeles and Chicago.



Repair & Reuse

Before discarding items, check to see if they can be repaired, donated, or sold. Visit secondhand stores and check local Buy Nothing groups or online marketplaces for items before buying new.



Climate Resilience

Talk with family, friends, and neighbors about climate concerns, priorities, and needs. According to the Yale Program on Climate Change Communications, although 63% of Americans are worried about global warming, only 35% of Americans discuss it. By having open conversations, you can help prepare your community for the effects of climate change.



Get Involved

Engage with your community and help be a local climate action leader! Consider joining the Environmental Sustainability or Transportation board, attending County Council and Board of Public Utility (BPU) meetings, and advocating for climate action implementation in your everyday life.

Implementation

The following implementation considerations are critical for successful implementation of this CAP and meaningful progress toward climate goals.

Community support, partnerships, and collaboration

Continued community support is vital for the successful implementation of the CAP—from building and sustaining buy-in to empowering community members to take a greater role in climate action, the County recognizes the importance of ongoing community engagement. Many of the actions above involve establishing or strengthening partnerships or collaborations, such as with local schools and community-based organizations; some of these key actions include CC2.1, CC2.3, and CC2.4. The County will regularly assess its community engagement efforts and identify opportunities for improvement.



Equity

This CAP aims to distribute benefits and burdens equitably across the community (i.e., ensure that more vulnerable groups receive greater benefits and bear fewer burdens than other groups as a result of CAP actions). As part of this goal, the County will explore opportunities to address financial barriers for community members, build and strengthen inclusive and equitable partnerships, and incorporate diverse perspectives in decision-making.

Leadership and Accountability

Because of the interdisciplinary nature of climate change, the County will work across departments to implement the CAP. Key accountability approaches for implementation of the CAP are summarized below, to ensure that the County is making progress toward CAP goals.

Progress reporting and monitoring

- Report on CAP progress, challenges, and next steps to County Council and the ESB (brief reports and presentations annually; more detailed reports and presentations every 3-5 years). If needed, form new County staff and/or County advisory groups to guide and oversee CAP implementation.
- Share progress with the community (Action CC2.2).
- Update the community-wide sector-based GHG inventory every 3-5 years.

Plan adjustments and updates

- Work with County Council and the ESB to update CAP actions as needed to ensure adequate progress toward emission reduction goals.

Note that this is a strategic plan; as such, it defines goals, tactics and the actions recommended to achieve desired outcomes. While this recommended implementation plan includes actions relating to the proposed focus areas and strategic priorities, it is subject to change. In addition, all actions requiring funding will need to be approved by the County Manager and County Council. The "[Implementation Matrix](#)" on the following pages represents the beginning of an ongoing and evolving implementation plan, which will kick off after CAP adoption.

Phasing

Ongoing

Continuation of County or regional initiatives without significant changes.

Immediate

1-2 YEARS (2025-2026)

Priority actions for meeting the County's emissions reduction goals and foundational actions that pave the way for future work.

Near-term

3-6 YEARS (2027-2030)

Actions that continue moving the needle for Los Alamos to achieve its goals and establish more foundational infrastructure, partnerships, and regulations.

Mid-term

7-11 YEARS (2031-2035)

Actions that require longer-term or more complex planning, coordination, and investments or may be less strongly supported by the community.

Funding and Education Resources

As Los Alamos County moves forward on identifying priority areas of implementation in its Climate Action Plan, it is imperative that the County identify potential partners, information, and funding resources and examine examples of other successful programs. Below is a list of some of the state and federal resources available, as well as examples of existing and previous climate programs.

Renewable Energy & Grid Resilience

- [New Mexico Solar Market Renewable Energy Production Tax Credit \(updated in 2024\)](#)
- [New Mexico Grid Resilience Grant Program](#)
- [Geothermal Resource Assistance](#)
- [Commercial Property Assessed Clean Energy Program](#)
- [Federal Solar Tax Credit](#)
- [USDA Rural Energy for American Program Energy Audit & Renewable Energy Development Assistance Grants](#)
- [USDA Rural Energy for America Program Renewable Energy Systems and Energy Efficiency Improvement Guaranteed Loans and Grants](#)

Energy Efficiency & Electrification

- [NMSU Program for business energy efficiency \(no fee service\)](#)
- [New Mexico Community Energy Efficiency Development Grant Program](#)
- New Mexico Sustainable Building Tax Credit (Residential and Commercial)
 - [Sustainable Building Tax Credit \(SBTC\)](#)
 - [Energy Conserving Products](#)
- [New Mexico Energy Savings Performance Contracts](#)
- [New Mexico Mortgage Finance Authority Low Income Energy Efficiency Program \(federal LIHEAP funds\)](#)
- [USDA Rural Energy for American Program Energy Audit & Renewable Energy Development Assistance Grants](#)
- [USDA Rural Energy for America Program Renewable Energy Systems and Energy Efficiency Improvement Guaranteed Loans and Grants](#)
- [Federal Tax Incentives for Residential Energy Efficiency](#)
- [Federal Tax Incentives for Business Energy Efficiency](#)
- [Commercial Property Assessed Clean Energy Program](#)
- [City of Albuquerque Business Energy Challenge](#)

Electric Vehicles and Electric Vehicle Infrastructure

- [National Electric Vehicle Infrastructure Act \(NEVI\) \(federal funds available through NM Department of Transportation\)](#)
- Federal tax credits for EV vehicles and infrastructure
 - [Tax Incentives](#)
 - [New and Used Clean Vehicle Tax Credits](#)
- [New Mexico State Clean Car Tax Credit \(recently announced, site still being finalized\)](#)
- Examples of Utility EV education and rebate programs
 - [PNM](#)
 - [El Paso Electric Company](#)
 - Xcel Energy
 - [Easy Electric Vehicle Charging at Home](#)
 - [Save Money on Charging](#)
 - [Tri-State Generation and Transmission Association \(rural cooperatives\)](#)

Water Resources

- [State of NM Clean Water Revolving Loan Fund](#)
- Examples of Municipal Rebate Programs
 - [Albuquerque/Bernalillo County Water Utility Authority](#)
 - [City of Santa Fe](#)

Tree Planting and Stewardship

- [Tree Planting and Stewardship, Tree New Mexico](#)
- [Recycling, New Mexico Recycling Association](#)

Future Financing Options for Communities, Residents and Businesses

- [New Mexico Climate Investment Center](#)
- Suggestion: Los Alamos County could seek advice and counsel from other counties and experts in New Mexico regarding the anti-donation clause. Interpretation of the law can vary but programs that are for the community common good are often considered lawful. Professor Gabe Pacyniak at the University of New Mexico School of Law is an expert on the anti-donation clause and can serve as a resource for ongoing questions and interpretation.

Implementation Matrix

The implementation matrix is a living document that will continue to evolve after CAP adoption. The following tables are organized by timeframe and summarize key implementation considerations such as lead department or agency, potential funding sources, and immediate next steps.

Legend:

Timeframe:	 = Ongoing	 = Immediate (1-2 yrs)	 = Near-term (3-6 yrs)	 = Mid-term (7-11 yrs)
Relative cost: Each action includes its relative cost, considering direct costs to the County and community, as well as cost savings. "Not estimated" means that the action was added or changed after the initial analysis.	 = Low	 = Moderate	 = High	
Relative impact: Each action includes its relative GHG reduction or climate resilience impact, considering the needs it addresses and the scope and likelihood of impact. "Not estimated" means that the action was added or changed after the initial analysis.	 = Low	 = Moderate	 = High	
Scope of each action:	 = Community	 = County government operations		 = Both community and County operations

Lead:

CDD: Community Development Department	CSD: Community Services District	PD: Police Department
CMO: County Manager's Office	DPU: Department of Public Utilities	PW: Public Works

Funding:

ATTAIN: Advanced Transportation and Innovation	CMAQ: Congestion, Mitigation, and Air Quality Improvement Program	HMGP: Hazard Mitigation Grant Program	NMED: New Mexico Environment Department
BIL: Bipartisan Infrastructure Law	DOE EECBG: Department of Energy Efficiency and Conservation Block Grants	IJIA: Infrastructure Investment and Jobs Act	PPRF: Public Project Revolving Fund
BRIC: Building Resilient Infrastructure and Communities	DOE WARP: Department of Energy Weatherization Assistance Program	IRA: Inflation Reduction Act	TAP: Transportation Alternatives Program
CDBG: Community Development Block Grant	EMNRD: Energy, Minerals, and Natural Resources Department	LEDA: Local Economic Development Act	
CIG: Conservation Innovation Grants	HEEHRA: High-Efficiency Electric Home Rebate Act	NEVI: National Electric Vehicle Infrastructure	

Buildings & Energy

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.1: Establish an energy benchmarking program for commercial buildings					
►►►	Lead: DPU Support: CMO; CDD; partner with Chamber or Housing partners	<ul style="list-style-type: none"> IRA LEDA 	  		<ul style="list-style-type: none"> Identify necessary staff time to devote to program development Establish benchmarking criteria to track building energy and water performance in commercial buildings, including offices, restaurants, hotels, and other business facilities Develop benchmarking criteria through research of similar programs and discussions with partners Identify and compile list of existing incentives Offer education and promote existing incentives Encourage commercial customers to share data to promote energy efficiency improvements Identify and formalize relationships with community partners, such as the Los Alamos Chamber of Commerce, to help develop and promote a program Develop education program, including developing promotional/educational materials and identifying priority businesses and buildings Educate building owners on potential cost benefits of efficiency upgrades where necessary Consult the business energy efficiency program through NM State University as a resource

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.2: Establish an energy benchmarking program for County-owned buildings					
►►	Lead: PW - Capital Projects and Facilities Support: CMO Sustainability Manager	• IRA	 		<ul style="list-style-type: none"> Identify necessary staff time to devote to program development; secure funding for assessments, upgrades, monitoring, and maintenance Establish benchmarking criteria to track building energy and water performance in County-owned and operated buildings using the EPA Energy STAR Portfolio Manager Tool Perform ROI assessments to build the case for necessary upgrades in municipal buildings; identify all relevant County-owned buildings, evaluate energy and water use data, develop strategic plan for building retrofits and/or upgrades Earmark recurring funding to support efficiency upgrades of County buildings Monitor smart meters for gas, water, and electricity currently in place in all relevant County facilities, including buildings and light posts Develop or purchase software for building performance dashboard to track building performance for all County facilities Share the dashboard with the community to highlight and communicate improvements in energy efficiency Explore resources from the ENERGY STAR® Portfolio Manager®

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.3: Encourage community energy efficiency and electrification retrofits					
	<p>► Lead: DPU Support: CMO Sustainability Manager</p>	<ul style="list-style-type: none"> IRA New Mexico Clean Energy Grants 	  		<ul style="list-style-type: none"> Identify necessary staff time to devote to program development; secure funding for delivering free energy audits Develop community-wide efficiency and electrification outreach and educational campaign program, including developing promotional/educational materials, reaching out to community organizations and leaders to understand best avenues for engagement (e.g., in-person workshops, tabling at events, social media posts) Identify potential partners and gaps to supplement existing County programming Educate property owners on potential energy-saving renovations to their buildings; focus on cost savings and public health benefits for residents, business, and landlords Identify and compile list of existing incentives, funding sources, resources, and information; promote existing incentives and funding sources, especially for low-income households; focus on cost savings and public health benefits for residents, business, and landlords Develop energy audit program, starting with a pilot program if appropriate; purchase additional DIY energy audit tools such as thermal cameras; provide free home energy audits Provide information about specific retrofits (e.g., weatherization, energy efficient appliances, LED lighting, electric hot water heaters, space heaters, stoves, laundry dryers) Market DPU's "Induction Cooktop Loaner Program" Teach residents how to engage in decision-making regarding the ownership, generation, storage, distribution of, and transition to renewable energy Provide information on available funding for all residents and share what incentives are available to relieve the financial burden for low-income residents. Notify the community when new funding opportunities become available through resources such as the County website, utility bill inserts, and pamphlets and brochures distributed at County events Stay up to date on future clean energy financing options for low-and-moderate income households, such as through the New Mexico Climate Investment Center

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.4: Adopt green building standards					
	Lead: CDD Support: CMO Sustainability Manager	<ul style="list-style-type: none"> • Green Building tax incentives • IRA 			<ul style="list-style-type: none"> • Identify necessary staff time to devote to implementation of action • Promote fossil fuel infrastructure reduction in new residential, commercial, and municipal construction by adopting a green building performance standard (examples include the Santa Fe County HERS Rating and Seattle Building Energy Performance Standard) • Research and decide on standards to adopt, based on noted examples, conversations with partners and County staff, and Council direction • Develop education program, including developing promotional/educational materials • Educate the community on the cost and public health benefits this will provide for new buildings such as lower utility bills and improved indoor air quality • Consider combining outreach and education efforts with BE1.1 and BE1.3, as appropriate • Plan to provide technical assistance, educational resources, and outreach during this transition, especially for commercial users of natural gas appliances such as restaurants and community centers • Identify technical assistance needs (could be identified as part of outreach program from BE1.3 or contractor training program development from BE1.5) and develop plan for providing technical assistance • Research reflective roofing materials to reflect heat • Continue monitoring recent federal case law which determined that local governments are prohibited from banning new natural gas hook-ups

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.5: Develop a training program					
►►	Lead: CDD Support: CMO and DPU	• Green Building tax incentives • IRA	 		<ul style="list-style-type: none"> Identify necessary staff time to devote to program development Develop training priorities and program content, based on needs identified by partners, relevant parties, and local contractors Identify, support, and/or develop free training programs and resources for local and regional contractors, design professionals, County staff (i.e., plan reviewers, building inspectors, and project managers), and interested members of the public to learn green building skills such as electrification, energy efficiency, and water efficiency retrofits, especially during low-construction times of year Reach out to potential partners to understand training needs and partners' interest in collaborating on the program development or implementation; potential partners may include UNM-LA, NNMC, and Santa Fe Community College; connect with them for information on existing programs Consider organizing a quarterly open house with contractors Consider combining outreach and education efforts with BE1.1 and BE1.3, as appropriate
BE1.6: Require electric equipment replacement at burnout for County					
►►	CDD	• IRA	Not estimated		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Develop policies and programs that will result in replacement of fossil fuel appliances and equipment at the end of their useful life in County-owned and -operated buildings. Policies and programs should focus on major natural gas uses in County buildings, including space/water heating Identify obstacles that could impede progress on electrification, such as needed infrastructure upgrades, and identify opportunities to address these barriers Educate County staff on preparing for replacement before burnout (e.g., through audits and appliance replacement plans) Develop requirements for end-of-life replacement of gas-powered equipment in County buildings with efficient, electric equipment Consult with contractors and building owners on replacing natural gas equipment with electric

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.7: Encourage electric equipment replacement at burnout for community					
►►	Lead: CDD	• IRA	Not estimated	救人图标	<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Encourage replacement of natural gas appliances with electric before or as they approach the end of their useful life Educate community members on how to prepare for replacement (e.g., through audits and appliance replacement plans). Educational programs should focus on major natural gas uses in buildings, including space/water heating, clothes drying, and cooking As part of this work, the County will identify obstacles that could impede progress on electrification, such as needed infrastructure upgrades, and identify opportunities to address these barriers Conduct peer city research on similar natural gas equipment replacement programs Consult with contractors and building owners on replacing natural gas equipment with electric Educate the public on the benefits of electrification through informational handouts, technical assistance, and workshops Advocate for change or clarification of the NM Anti-Donation Clause to allow local governments to provide incentives for energy reduction projects Identify potential partners and advocates for anti-donation clause to allow local governments to provide incentives for energy reduction projects Begin discussions with our state legislative delegation to identify advocates for amendment Explore using sustainability criteria in Metropolitan Redevelopment Area plans Explore how other municipalities are using LEDA and HUD to provide incentives for energy reduction projects

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE2.1: Promote renewable energy					
►►	Lead: DPU Support: CMO	<ul style="list-style-type: none"> • HEEHRA • IRA • Solar Market Development Tax Credit • EMNRD Renewable Energy Production Tax Credit • New Mexico Clean Energy Grants 			<ul style="list-style-type: none"> • Determine staff time and capacity needed to promote this action • Support local and statewide standards for sourcing renewable energy generation and grid modernization • Continue to work with DPU as all energy options are explored to best balance demand with public support and feasibility • Facilitate dialogue with DPU, solar energy providers, and community members to educate and highlight on the status of DPU's distributive generation program and the benefits of solar + battery and grid modernization moving forward • Review results of the DPU Distribution System analysis, which is being conducted to prioritize grid modernization based on current and estimated load distribution • Evaluate effective and viable methods to expand DPU's distributive generation resources in a balanced and equitable manner • Identify existing grants, loans, and financial assistance programs to incentivize carbon-neutral power supplies • Advocate for the development of regional or statewide standards, policies, or resources that advance grid modernization including incorporating storage solutions to expand solar generation potential or providing financial assistance to offset infrastructure costs
BE2.2: Expand electric energy resiliency					
⟳	DPU	<ul style="list-style-type: none"> • IRA • IIJA • House Bill 233, Energy Grid Modernization Roadmap 			<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Continue to expand electric energy resiliency by investing in a diverse set of renewable energy sources such as wind, solar, geothermal, and nuclear, as well as energy storage • Work with DPU staff to align with existing initiatives and increase energy resiliency for the community through the Integrated Resource Plan (IRP) and by providing redundancies within the circuit systems • Research options, steps, and potential challenges to increase battery storage usage so that energy from renewables can be stored and used during peak hours • Explore establishment of microgrids within the systems for energy redundancy and security

Transportation & Land Use

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T1.1: Promote EV adoption					
	CMO	<ul style="list-style-type: none"> NEVI Formula Program IRA New Clean Vehicle Tax Credit 		 	<ul style="list-style-type: none"> Identify necessary staff time to devote to implementation of action Encourage EV network expansion by educating the community on available tax incentives and rebates for EV purchases, with a focus on those available to low-income populations Identify and compile list of existing incentives, rebates, funding sources, resources, and information about EV purchases, prioritizing those that prioritize low-income communities Develop education program, including developing promotional/educational materials and brainstorming a variety of education avenues (e.g., in-person workshops, tabling at events, social media posts, information on County website) Convert municipal small engines, lawn/garden equipment, and golf carts, to be fossil fuel free within ten years Continue pilot for municipal small engine and lawn garden equipment to determine pros and cons Develop policy to procure municipal small engine and lawn garden equipment. Policy should consider performance and economics with a strong preference for electric items Develop transition plan for municipal small engines to be fossil free within ten years Identify partners such as LANL and the school district to work together on fleet conversions to EVs Currently in design phase for infrastructure needs to charge and store 60+ electric golf carts. Golf carts estimated delivery is 2025

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T1.2: Develop EV infrastructure plan					
►	CMO/PW	<ul style="list-style-type: none"> NEVI Formula Program IRA Charging and Fueling Infrastructure Grant Program 	 		<ul style="list-style-type: none"> Identify necessary staff time to devote to implementation of action, including determining if there is in-house capacity to develop a plan. If not, hire a consultant Develop and implement an EV infrastructure plan that prepares the County and community for the transition to EVs by mapping infrastructure needs Partner with the Los Alamos Department of Public Utility, NMDOT, Los Alamos Public School, UNM-LA, and other organizations to develop strategies and identify barriers for EV readiness in key locations, including public spaces, schools, businesses, places of worship, and multifamily homes Explore funding opportunities, such as federal grants and state incentives to support the planning and installation of EV infrastructure Build and formalize partnerships with key partners including the Los Alamos Electric Utility, NMDOT, schools, businesses, and community organizations Map existing EV charging stations and areas that should be prioritized for EV chargers Establish an EV working group to accelerate the development of charging infrastructure and a robust transition plan Investigate shaded parking as part of EV infrastructure i.e. solar powered EV chargers
T1.3: Promote EV readiness					
►►►	CDD	<ul style="list-style-type: none"> NEVI Formula Program IRA Charging and Fueling Infrastructure Grant Program 	Not estimated		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Incentivize and educate about EV readiness for new and redeveloped single family homes. Encourage a certain number of EV chargers in multi-family housing, commercial developments, and community gathering spaces, including increased access for affordable housing units Collaborate with relevant partners, including developing and distributing guidelines and resources for contractors and developers to encourage EV readiness and charging infrastructure Determine proportion of EV chargers to units needed per multi-family development and commercial builds

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T1.4: Transition County fleet to EVs and reduce idling					
►►	PW	<ul style="list-style-type: none"> • Clean Heavy-Duty Vehicles Program • NEVI Formula Program • IRA 	 		<ul style="list-style-type: none"> • Work with the County Fleet and Transit Divisions and EV Working Group to transition County vehicle fleet to EVs when replacing a fleet vehicle that has reached the end of its usable life, where feasible • When technology is not available, pursue transition strategies such as right-sizing or hybrid vehicles • Consider aligning with New Mexico state target to achieve a zero-emission vehicle fleet by 2035 • Conduct an inventory of current fleet, if not already available • Assess estimated end of life timelines for fleet to identify priority vehicles • Follow implementation steps for T1.1, T1.2, and T1.3 to increase availability of EV charging sites and infrastructure to support additional EV vehicles • Explore policy options to reduce emissions in current vehicle fleets (e.g., idling policies) • Revise and implement a County operations “no idling” policy to reduce GHG emissions and air pollution associated with gasoline-powered vehicles • Develop and implement an educational campaign for County staff • Consider developing and implementing an educational campaign for community members • Staff may have varying comfort levels in working with EVs; consider polling staff on comfort, concerns, and questions and develop protocols for staff training • County Fleet and Transit Divisions are developing a scope of work for a Fleet Conversion and Transit Conversion studies to include an evaluation of expanding charging capabilities at County buildings. Fleet to include a funding for a Fleet Conversion Study was received as part of the FY25 budget process

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.1: Expand mixed-use, transit-oriented development policies					
	CDD	• TAP			<ul style="list-style-type: none"> Identify necessary staff and partners to involve, and determine the staff time needed to implement this action Continue to expand land use zoning standards and codes, such as changes to parking minimums, to promote affordable, transit-oriented, and mixed-use development to reduce urban sprawl Encourage building within walking distance of essential services, when possible, and promote existing complete streets policies and Public Works Design & Construction Standards Support existing County policies to maintain and increase housing options for all residents by engaging with non-profit service providers who oversee daily operations of affordable housing homeownership, rental, and rehabilitation programs. Affordable housing policies may include a “rent-to-own” policy, where a portion of rent is set aside as capital towards the down payment of a housing unit Begin a review of current land use zoning standards, parking minimums, and existing complete streets policies and identify areas for improvement of connectivity and affordability Assess and map prime locations for mixed-development, transit connectivity, and priority intersections Begin exploring additional affordable housing policy and vet with key staff, partners, and the community
T2.2: Continue public transit education campaign					
	PW/CMO	• CMAQ			<ul style="list-style-type: none"> Identify necessary staff time to design and implement educational campaign Partner with the media to continue education campaigns that educate on how to use public transit options, showcase transit connections to bike and pedestrian ways, and feature bus rider stories in an effort to combat fear and prejudice while highlighting advantages and accessibility Build on Atomic City Transit’s marketing plan to increase awareness of the transit opportunities that are available in Los Alamos and retain and attract customers Continue to teach new riders how to use the Atomic City Transit app and bike racks in an effort to raise Atomic Transit ridership, which is currently low in the County Develop, review, and understand key performance metrics for community engagement Partner with Atomic City Transit to develop educational materials such as brochures and videos, to provide through various media channels to ensure the community is informed about the benefits and usage of public transit

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.3: Advocate and partner regionally to improve transit network					
►►	PW	• IIJA	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Continue to work with partners such as Atomic City Transit, LANL, Los Alamos Public Schools, North Central Regional Transit District, and NM Park and Ride to advocate and engage in regional opportunities to improve the transit network to (1) ensure there are safe non-motorized connections to transit facilities, addressing first and last mile improvements, (2) expand transit access to neighborhoods that are not currently served by transit and to services, jobs, and activities for seniors, people with disabilities, and low-income residents, and (3) increase bike storage at transit centers Reference the Transit Center Study to identify priority areas for County transit access, emergency services, and opportunities for regional transit collaboration Use findings from the Transit Study to increase ridership, implement more micro transit options, provide incentives, and increase route frequency Develop and/or maintain regional transit partnerships Assess priority needs for expanded transit service, gaps in transit service, and multi-modal connectivity Advocate to partners for expanded multi-modal transit connections, transit access, and transit stop amenities

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.4: Encourage multimodal transportation					
▶▶▶	CDD	<ul style="list-style-type: none"> ATTAIN IIJA 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Provide educational resources for commercial property owners and consider updating land use codes to increase bike storage options, preferred parking for carpools, and shared vehicles to promote multimodal transportation options Develop and provide educational resources for property owners—which could include flyers, brochures, and webinars—to increase bike storage options, preferred parking for carpools, and shared vehicles to promote multimodal transportation options Develop outreach campaign plan for providing educational materials and resources to property owners Consider updating land use codes to increase bike storage options, preferred parking for carpools, and shared vehicles to promote multimodal transportation options Research peer jurisdiction examples of similar land use codes Build off of the Development Code's Parking Alternatives and Reductions section, which allows for reducing the parking requirements for commercial properties that have bike storage or repair facilities
T2.5: Expand non-motorized transportation options and accessibility					
▶▶	PW	<ul style="list-style-type: none"> DOT Transportation Infrastructure Finance & Assistance IIJA 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Identify and implement projects from the 2017 Bicycle Transportation Plan, Trails and Open Space Management Plan, Bicycle Working Group, and Public Works to expand non-motorized transportation options and infrastructure to support biking, walking, and other means of non-motorized transportation. This includes projects to improve and create bike and walking infrastructure, especially in low-income and older neighborhoods, and invest in County-funded sidewalk improvement for safety and accessibility for all users, with a focus on those with limited mobility Establish a taskforce/advisory committee with a variety of representatives from the community Identify priority streets for a complete streets program Identify gaps in the bicycling and pedestrian network and infrastructure Solicit public input and community feedback on potential improvements through community workshops and surveys Consider exploring bike, car and scooter share programs that could be implemented

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.6: Develop a CTR program					
	CMO				<ul style="list-style-type: none"> • Develop a commute trip reduction (CTR) program for County employees that builds on the "Drive Less Los Alamos" Walk, Bike, Ride, Carpool Initiative • Continue to provide resources on the Los Alamos County Trail Network, cycling safety measures, Atomic City Transit and Afternoon Express routes and schedules • Encourage employees to utilize alternative modes of transportation when commuting to and from work • Continue to expand flexible work options and remote and hybrid work, for applicable positions, through the Telework and Alternate Work Schedules program, including exploring options such as 4-day work weeks • Encourage local employers to promote CTR, including collaborating with Los Alamos National Laboratory to develop a commuter program and explore flexible work options • Assess County positions to add to the Telework and Alternate Work Schedules program • Assess the recent County commuting survey to better understand commute preferences, challenges, and behavior; design and implement an additional survey if more information is needed • Identify resources to help make sustainable commute choices easier, such as carpool and rideshare programs and partnerships with local employers

Materials & Consumption

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
MC1.1: Promote circular economy practices					
►►	Lead: PW – ES Support: CMO	• CPRG			<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Promote circular economy practices, programs, and policies. At the County level, implement an environmental purchasing policy—a policy promoting the procurement of products and services with lower environmental impacts—for all County government agencies and departments. As part of this, develop and define purchasing policy criteria and decision-making processes Develop and vet an environmental purchasing policy for County operations in partnership with key County staff Develop and support community reuse and repair programs, such as fix-it clinics, a community tool library, and local “buy nothing groups” Support existing programs and resources like the Library of Things and the Los Alamos County Eco Station Work in consultation with local businesses to promote local reuse centers and practices Conduct peer city research on circular economy practices Assess locations for community resource centers Purchase and/or run a donation drive to collect resources for community resource centers
MC1.2: Expand and refine waste data tracking, reporting, and goals					
►►	Lead: PW Support: CMO	• \$ \$ • Leaf			<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Building on current work, expand waste data tracking and reporting methods to establish new goals, including new zero waste targets and management plan Conduct and expand the scope of future waste characterization studies to include additional sectors (commercial and multifamily) and waste streams (recycling and compost), as well as a more detailed material list for sorting Update the County’s current waste goals and targets to align with zero waste and source reduction priorities, including outlining specific actions and assessments needed to achieve these targets Assess current waste characterization for gaps in material types and sectors Develop an updated material list for waste characterization

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
MC1.3: Implement food waste prevention and diversion program					
►►	Lead: PW Support: CMO	• USDA (Food waste reduction program)	  		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Continue to establish and implement the municipal food composting program. In the short term, prioritize outreach on the new food compost program for high generators of food waste, and in the long-term, look to expand to curbside collection for residents and consider accepting and incentivizing compostable paper and other compostable packaging Facilitate a food waste prevention network between businesses, non-profits, and research institutions to develop systems and infrastructure to reduce food waste and foster connections between sources of unwanted food and communities in need Partner with local businesses, restaurants, grocery stores, and food pantries to raise awareness of edible food recovery programs Build upon existing Zero Waste Los Alamos resources and education campaign that provides food shopping, prep, and storage techniques to reduce spoilage; recipes to reduce food waste; and messages on reducing waste Perform a waste audit to better understand food waste across the community Reach out to local food banks to develop partnerships and co-create strategies to improved food waste prevention and diversion Begin targeted outreach with entities that are high food waste generators

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
MC1.4: Promote C&D recycling and reuse					
▶▶▶	PW	<ul style="list-style-type: none"> • Recycling and Illegal Dumping Grant 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Provide a construction and demolition (C&D) recycling, salvage, and deconstruction toolkit for construction professionals which includes how-to instructions, contact information for local service providers, and information on low-carbon and recycled building materials • Promote educational resources for building professionals through permit counter brochures, industry events, and industry publications • In the long-term, acknowledging the current limitations of local C&D recycling markets, consider a C&D recycling ordinance which requires that C&D project waste is minimized, reused, or recycled; or evaluate an incentivized approach by offering reduced rates for separating reusable C&D materials • Conduct peer city research on successful C&D recycling programs and ordinances • Facilitate conversations with construction professionals to understand challenges and priorities and how the toolkit could be most helpful • Develop educational resources and toolkit for construction professionals

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
MC1.5: Conduct recycling and composting outreach and education					
○	PW				<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Build on existing programs to conduct commercial and residential education and outreach on recycling, composting, and waste management best practices, including identifying opportunities to expand programs Develop commercial, single-family residential, and multifamily residential technical assistance program that offers recycling toolkits, welcome packets, online resources, and in-person outreach to help with waste prevention, recycling, composting, and sustainable purchasing, especially for new community members Develop standardized waste collection systems for commercial and multifamily properties, including designated colors for collection bins for each waste stream, clear and consistent signage such as posters with "what goes where," and recommendations for front-of-house or public facing bins Implement targeted commercial food scrap outreach that provides additional outreach for the largest generators (including hospitals, universities, and other institutions). Outreach should include information about known contamination issues that need to be addressed Assess the waste stream to identify the largest commercial food waste generators Design engagement/education campaign plans, including developing toolkits, printed and online resources and materials, and in-person outreach

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
MC1.6: Implement the zero waste strategy					
▶▶▶	PW	<ul style="list-style-type: none"> <u>Recycling and Illegal Dumping Grant</u> 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Implement all other recommendations outlined in the Zero Waste Strategy (ZWS) to continue to reduce the generation of waste and improve the focus to enhance waste reduction, recycling, and composting Plan for mid- and long-term strategies and actions outlined in the ZWS Promote and expand existing recycling services and programs, including evaluating curbside food scrap collection programs and increasing participation in existing programs such as the refrigerant recycling programs Invest in long-term programs that promote source reduction and alternatives to landfill, such as education and behavior change programs and research Develop an implementation plan for the zero waste strategy Evaluate avenues for reducing consumption associated greenhouse gas emissions through sustainable purchasing and consumption/disposal of food, goods, and services Build necessary partnerships for implementation

Natural Systems & Water Resources

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
NS1.1: Promote urban forest stewardship and tree preservation					
►►	CSD	<ul style="list-style-type: none"> Urban & Community Forestry Program 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Reduce the effects of extreme heat and promote healthy communities by increasing native, drought-friendly vegetation cover and enforcing the County's existing tree preservation and mitigation policy Promote urban forest stewardship through an equitable and inclusive community tree planting and preservation program, focusing "greening" in areas with lower tree coverage and higher exposure to extreme heat Review and update the County's tree protection ordinance Develop a plan and guiding principles for urban forest stewardship events and educational campaigns Develop an incentive system for landowners to plant and maintain trees on private property
NS2.1: Promote green stormwater infrastructure and low-impact development					
⟳	CDD/PW	<ul style="list-style-type: none"> BIL IIJA NMED River Stewardship Program CIG 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Continue to invest in green stormwater infrastructure and incentivize low impact development (LID) projects by streamlining permitting processes, prioritizing vulnerable communities most impacted by extreme weather and climate impacts Evaluate current permitting processes for LID projects and identify opportunities to simplify or streamline to better support LID projects Utilize GIS and tools like iTree to understand the tree canopy coverage within the city to identify priority areas for additional tree canopy or other green stormwater infrastructure project investments such as rain gardens and bioswales Building on current work, develop policies and programs that incentivize water-wise tree planting and work with NGOs to establish tree planting or GSI events Identify ways to reduce concrete and asphalt surfaces in development and encourage addition of permeable surfaces

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
NS2.2: Develop a water security strategy					
►►	DPU	<ul style="list-style-type: none"> The Drinking Water State Revolving Loan Fund IIJA BIL NMED Water Quality Grant Program 	  		<ul style="list-style-type: none"> Determine staff time and capacity needed to conduct water risk assessment Align with the Los Alamos Long Range Water Supply Plan (2017) and Source Water Protection Plan (2003) to develop a water security strategy and drought preparedness plan to address water shortages and prepare for climate impacts Promote collaboration and data sharing on water resources with other jurisdictions, and revise land use practices to conserve water in the county Expand existing water conservation programs which encourage the community to reduce daily water use and educate residents on water sources and supply Explore peer jurisdictions' water management plans and incorporation of water management into emergency preparedness plans Identify gaps in the County's Long Range Water Supply Plan and Source Water Protection Plan
NS2.3: Encourage sustainable landscaping and water conservation					
►►	DPU	<ul style="list-style-type: none"> Native Plant Society of New Mexico CIG NMED River Stewardship Program NMED Water Quality Grant Program 	  		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Reduce water consumption from landscaping by planting native and climate appropriate plants Work with landscape companies and homeowners to educate drip irrigation and low pesticide management techniques Support the Water and Energy Conservation Program and Water Rule W-8 to reduce potable water use and encourage management of reclaimed water Develop education on interpreting individual water consumption data to determine general outdoor usage Explore options for rebate programs that provide assistance in water efficiency landscape practices such as replacing grass Align with NS2.2 to determine staff time and capacity needed to develop a long-term county water plan that identifies resources, plans for growth, and outlines a path for conservation Work with partners to begin to identify opportunities to reduce water use at County facilities (e.g., low flow toilets) and recreational areas (e.g., alternative irrigation methods for golf courses)

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
NS2.4: Provide greywater reuse education					
▶▶▶	DPU	• BIL	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action and identify funding needed for rain barrel purchases Promote greywater systems for residents, including providing free rain barrels to homeowners to capture and reuse rainwater Develop new educational programs for the community on the environmental and financial benefits of reusing rainwater and greywater Continue and investigate expansion of greywater programs and uses, building on the County's current programs Collaborate with community groups to share educational materials

Climate Resilience, Adaptation, & Wellbeing

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CR1.1: Conduct a vulnerability assessment					
	CMO/PD (Emergency Management Commander)	<ul style="list-style-type: none"> • New Mexico Climate and Conservation Fund • Resilient Communities Fund • BRIC • HMGP • PPRF 			<ul style="list-style-type: none"> • Identify staff time and capacity needed to conduct the assessment • Conduct a climate hazard vulnerability assessment to understand how extreme weather and other aspects of climate change will impact people, services, and infrastructure, particularly vulnerable populations • Identify vulnerable areas and populations and enhance equity-focused response in emergency planning to extreme temperature events, drought conditions, and wildfires • Establish a planning team with key County staff and partners to oversee the vulnerability assessment • Set clear goals and define the scope of the vulnerability assessment • Collect and review relevant climate and demographic data in the County and begin to identify and map vulnerable populations and critical infrastructure/systems • Reach out to local organizations to form partnerships and begin gathering input from communities on perceived climate risk and vulnerability (such as through a survey or workshop) • Align with Hazard Mitigation Plan • Use https://nmclimaterisk.org/ • Consider incorporating climate emergency/public health planning into existing plans • Research funding mechanism such as Energy Savings Performance Contracts for residential households

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CR1.2: Invest in public climate education campaigns					
●	CMO	<ul style="list-style-type: none"> Resilient Communities Fund BRIC 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Invest in public education campaigns about climate resilience and mitigation solutions in partnership with Pajarito Environmental Education Center Tailor campaigns to educate and empower vulnerable communities, which often experience the earliest and most acute impacts of climate change, face historic and current inequities, and have limited capacity to adapt Share climate information through targeted community outreach to develop capacity to address sustainability issues Encourage schools to incorporate sustainability related topics and consider partnering with the Los Alamos High School EcoClub Form a planning team with key partners, schools, and community groups In collaboration with the planning team, outline the goals of the education campaigns and determine which vulnerable communities and groups will be the focus of the campaigns Develop educational materials and messages that are relevant and accessible to the target audiences Consider partnering with the medical community to educate about the public health impacts from climate change
CR1.3: Support the local food system					
●	Lead: CSD Support: CMO	<ul style="list-style-type: none"> Resilient Communities Fund BRIC NMED Environmental Justice Small Grants Program 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Promote the Los Alamos Farmers Market on the County's website and social media and at County events Support and promote community and backyard gardens through coordinated community education and regional collaboration Collaborate with businesses and organizations such as LA Cares to provide resources and support for food security for all residents Connect with existing food banks, urban agriculture and gardening organizations, farmers markets, and food security organizations in the county and region; understand what kind of support would be helpful for initiatives and programs already underway

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CR2.1: Encourage adaptation upgrades					
►►	CMO	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC • DOE WAP • DOE EECBG • New Mexico Clean Energy Grants 			<ul style="list-style-type: none"> • Form a planning team with key County staff or with Environmental Sustainability Board to identify grants to offer rebates/incentives, including determining eligibility • Solicit grants to offer rebates and incentives for eligible entities to encourage adaptation upgrades on residential and commercial properties (e.g., reducing paved areas to address runoff and heat, installing green roofs, permeable pavement, air filters, fans) • Research and compile a list of potential funding opportunities from federal, state, and private sources • Develop grant proposals and involve community members and local businesses to gather input and support
CR2.2: Embed climate adaptation and resilience in County operations					
►►		Not estimated			<ul style="list-style-type: none"> • Embed climate adaptation and resilience across County operations • Review plans, policies, programs and operations with a climate adaptation and resilience lens, including current Emergency Management Plan • Update plans and policies to include adaptation and resilience strategies • Integrate into Project Management and Interdepartmental Review Committee review of buildings and projects to consider energy and water efficiency, EV readiness, and zero waste strategies • Improve climate literacy of County staff
CR2.3: Address and prepare for heat and other climate impacts					
►►		Not estimated			<ul style="list-style-type: none"> • Address and prepare for heat and other climate impacts in Los Alamos • Incorporate extreme heat preparedness and response into the County's emergency management plan or consider developing an emergency heat response plan • Implement a neighborhood cooling program, including partnering with local nonprofits and organizations to provide resources and check in on vulnerable residents during extreme heat events • Implement County cooling centers for the community in collaboration with community partners • Based on the findings from the vulnerability assessment (CR1.1), develop and implement additional adaptation and resilience strategies

Cross-Cutting

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CC1.1: Develop a sustainable business certification					
	DPU	<ul style="list-style-type: none"> Resilient Communities Fund BRIC LEDA 	  		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Collaborate with local businesses and relevant partners to develop and promote a certification program or labeling system that recognizes businesses that adopt sustainability measures such as energy efficiency, waste diversion, sustainable landscaping, and sustainable product sourcing As part of the certification program development, define sustainability criteria and guidelines Connect with local business leaders and relevant partners to design the certification program and define sustainability criteria and guidelines Promote this program in conjunction with Los Alamos County Chamber of Commerce
CC2.1: Facilitate equitable public participation in planning					
	CMO	<ul style="list-style-type: none"> Resilient Communities Fund BRIC NMED Environmental Justice Small Grants Program 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action In addition to providing robust and equitable education to help prepare vulnerable communities for climate impacts (CR1.2), actively seek input from marginalized or vulnerable populations in climate policy-making processes by expanding ESB membership. In Los Alamos, more vulnerable communities may include communities of color, low-income residents, older adults, and non-English speaking residents Identify vulnerable community members, community leaders, and community organizations to collaborate with Convene a community leader group to collaborate with the ESB and plan for engaging vulnerable populations in climate planning

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CC2.2: Monitor and share climate action progress					
►►	CMO	<ul style="list-style-type: none"> Resilient Communities Fund BRIC 			<ul style="list-style-type: none"> Consistently monitor CAP implementation progress through an online dashboard or website that provides climate action information and resources to community members, businesses, and partners Work with consultants and/or staff members to design and launch an online dashboard or website to track and display CAP implementation progress and provide climate action information Establish a system for regularly updating data on CAP implementation and annual progress updates Provide annual progress updates to County Council and the ESB Provide regular updates at County Council meetings on plan progress and provide updates to community
CC2.3: Collaborate with local Pueblos					
►►	CMO	<ul style="list-style-type: none"> Resilient Communities Fund BRIC CDBG NMED Environmental Justice Small Grants Program 			<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Work with local Pueblos to share resources and ideas on climate change issues, and align with relevant plans such as the Pueblo de San Ildefonso Climate Action Plan Support the County's efforts to build equitable partnerships with local Pueblos through the Progress through Partnering initiative, regional, or one-on-one projects to increase green workforce training offerings, clean energy access, transit, and public safety and wellbeing Initiate meetings and discussions with local Pueblos to exchange resources and ideas on climate change issues Co-develop a plan for partnership and engagement, building off the Progress through Partnering initiative

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CC2.4: Expand community partnerships					
	CMO	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC • NMED Environmental Justice Small Grants Program 	 		<ul style="list-style-type: none"> • Establish a vision for engagement and formalize partnerships with representatives from LANL, local schools, community-based organizations, Chamber of Commerce, and service organizations • Through the working group/partnership encourage technology development and innovative solutions to addressing climate challenges • Create communication materials to encourage participation, especially targeting community-based organizations representing those most impacted by climate change • Identify other pertinent beneficial partnerships for the County including state agencies and regional planning districts that could offer expertise and resources on CAP implementation

Conclusion

This CAP builds on recommendations made by the LARES Task Force and priorities set by County Council to solidify Los Alamos County's commitment to climate action. With this CAP, Los Alamos County has established GHG emission reduction targets of 30% reduction by 2030, 80% reduction by 2040, and carbon neutrality by 2050, compared to 2022 baseline emissions levels. This CAP also includes actions that increase the community's resilience to climate impacts while establishing and expanding partnerships throughout the community.

Actions in this plan will protect our community and minimize negative impacts from natural hazards such as fire, droughts, and flooding. These actions also ensure that Los Alamos County does its part to address this global crisis, which affects everyone on Earth regardless of their individual contributions, including the world's most vulnerable populations. Implementation of this plan will also bring a slew of additional benefits, including reducing energy costs for residents and businesses, improving local air quality, creating more beautiful landscapes, and providing additional mobility options for moving around the county.

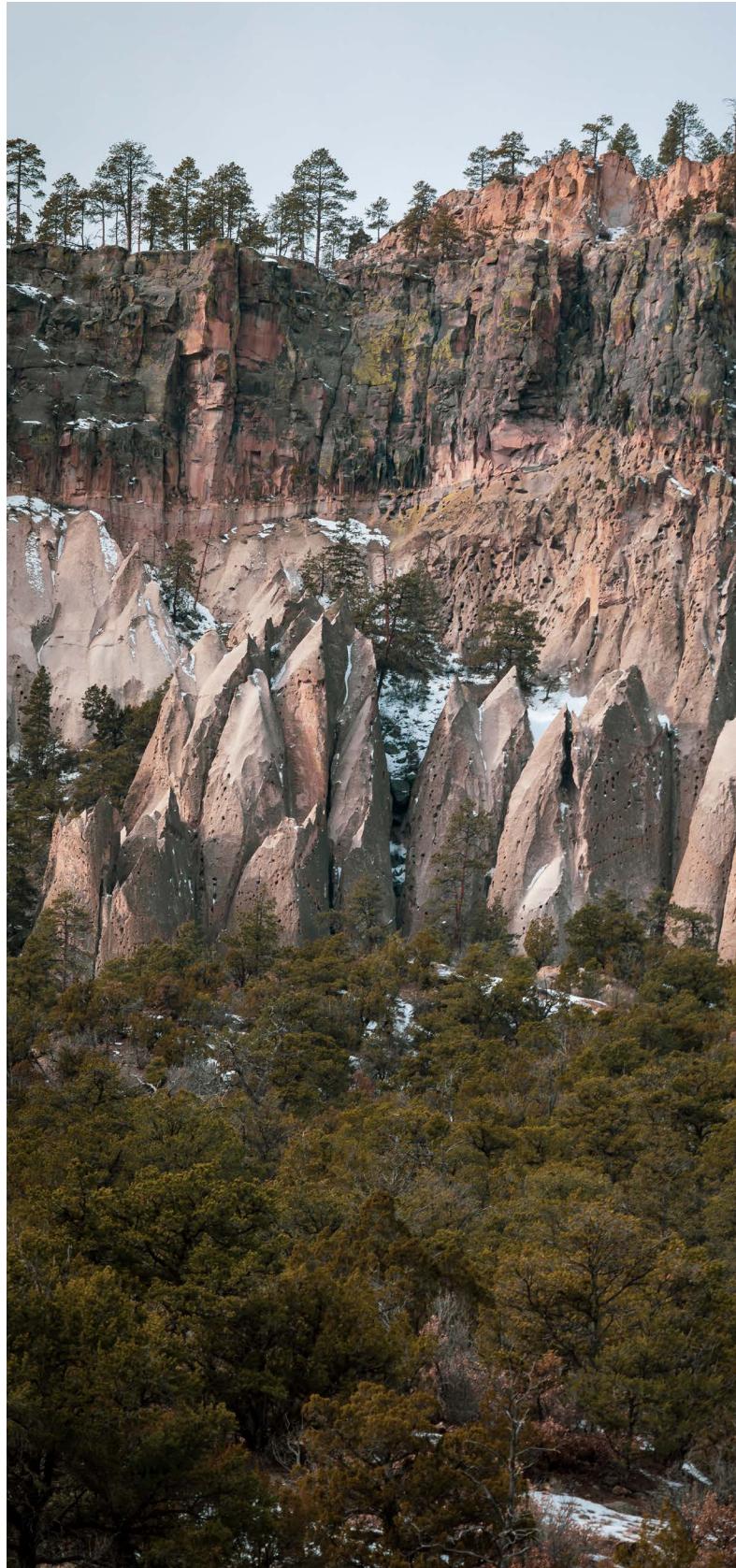


Los Alamos County is excited to lead this important work in collaboration with community members and other partners. Taking action on climate change is not just a choice; it's a moral imperative that shapes our future. By acting now, we can safeguard our planet for future generations, ensuring they inherit a world with clean air, stable weather patterns, and thriving ecosystems. Every action we take today, whether it's reducing our carbon footprint, supporting renewable energy, or advocating for sustainable practices, contributes to a healthier and more resilient planet. Together, we have the power to protect vulnerable communities, preserve biodiversity, and create a sustainable and equitable future for all. Joining the fight against climate change isn't just about responsibility—it's about seizing the opportunity to make a positive impact that reverberates across borders and generations.

Appendices

For more details about the analyses and CAP development process, see the following appendices, available on the County's website here: lacnm.com/sustainability.

- Appendix A. Sector-Based GHG Emissions Inventory Report
- Appendix B. Consumption-Based GHG Emissions Inventory Report
- Appendix C. Baseline Policy Assessment Memo
- Appendix D. Zero Waste Strategy
- Appendix E. Survey Summary
 - Survey Summary Appendix A: Survey Questions
 - Survey Summary Appendix B: Open-Ended Responses
- Appendix F. Community Workshop Summary
- Appendix G. Focus Groups and Individual Interviews Summary
- Appendix H. County Commuting Survey Results
- Appendix I. GHG Reduction Strategies Quantification Methodology & Findings
- Appendix J. Implementation Matrix by Timeframe





LOS ALAMOS



APPENDIX A.

Sector-Based GHG Emissions Inventory Report





LOS ALAMOS 2022 Sector-Based Greenhouse Gas Emissions Inventories

December 2023

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GLOSSARY

Key Term	Definition
Activity data	Data which reflects the magnitude of activities which results in emissions. Examples of activity data might include amount of energy consumed, vehicle miles traveled, or tons of waste produced.
Baseline year	The starting year to measure emissions reduction targets from.
Denitrification	Conversion of nitrate to nitrogen gas.
Effluent	Liquid waste or sewage discharged into bodies of water such as a river or stream.
Emission factor	Values that are used to determine the amount of a specific greenhouse gas emitted based on one unit of activity data. Examples of emission factors include metric tons of carbon dioxide (CO ₂), nitrous oxide (N ₂ O), methane (CH ₄), or CO ₂ equivalence emitted per kilowatt hour of electricity consumed, per pound of refrigerant used, or per vehicle mile traveled.
Greenhouse gases (GHGs)	Gases that trap heat in the atmosphere. The Local Government Operations Protocol defines GHGs as the six gases identified in the Kyoto Protocol: carbon dioxide (CO ₂), nitrous oxide (N ₂ O), methane (CH ₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF ₆).
Metric tons of carbon dioxide equivalent (MTCO₂e)	Metric tons of carbon dioxide equivalent. The most common unit to measure and report greenhouse gases in.
Nitrification	Conversion of ammonia to nitrate.
Operational control	An approach that quantifies emissions from what an entity owns, operates, and has full authority to determine operational policies and processes.
Stationary combustion	Combustion that burns solid, liquid, or gaseous fuel for energy, such as the combustion of natural gas for heating.

EXECUTIVE SUMMARY

Los Alamos County completed a community-wide and County operations comprehensive greenhouse gas emissions baseline study using a 2022 inventory year to inform its first Climate Action Plan (CAP).

The **geographic community-wide emissions inventory** accounts for emissions that are produced by actions from residents, visitors, schools, County operations, and businesses within the county's geographic bounds within the 2022 calendar year. To the best of our ability, Los Alamos National Laboratory's (LANL) emissions are not included in the community-wide total, but their emissions impact on the community is considered for informational purposes within the study.

The **County operations emissions inventory** accounts for emissions that are produced by County owned and operated facilities and activities.

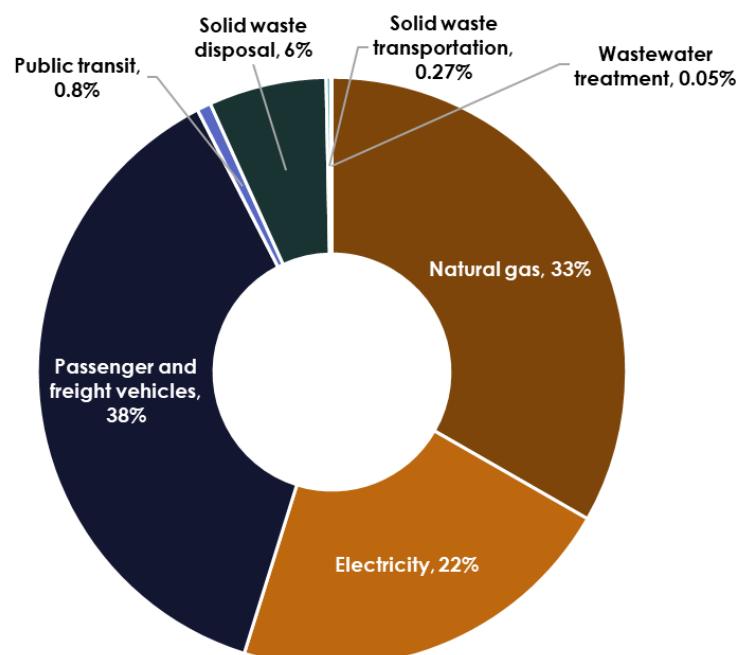
COMMUNITY-WIDE EMISSIONS

In 2022, Los Alamos County's **community** produced an estimated 137,670 metric tons of carbon dioxide equivalent (MTCO₂e), equating to approximately 7 MTCO₂e per capita.¹ Figure 1 shows the summary of the community-wide emissions, with the largest contributors being from:

Community building energy consumption (55%) stemming from natural gas (33%) and electricity (22%).

Transportation (38%) stemming from passenger and freight vehicles (38%) and public transportation (<1%).

Figure 1. Los Alamos County community-wide emissions summary (2022).



¹ Based on a population of 19,187 (U.S. Census 2022 estimate).

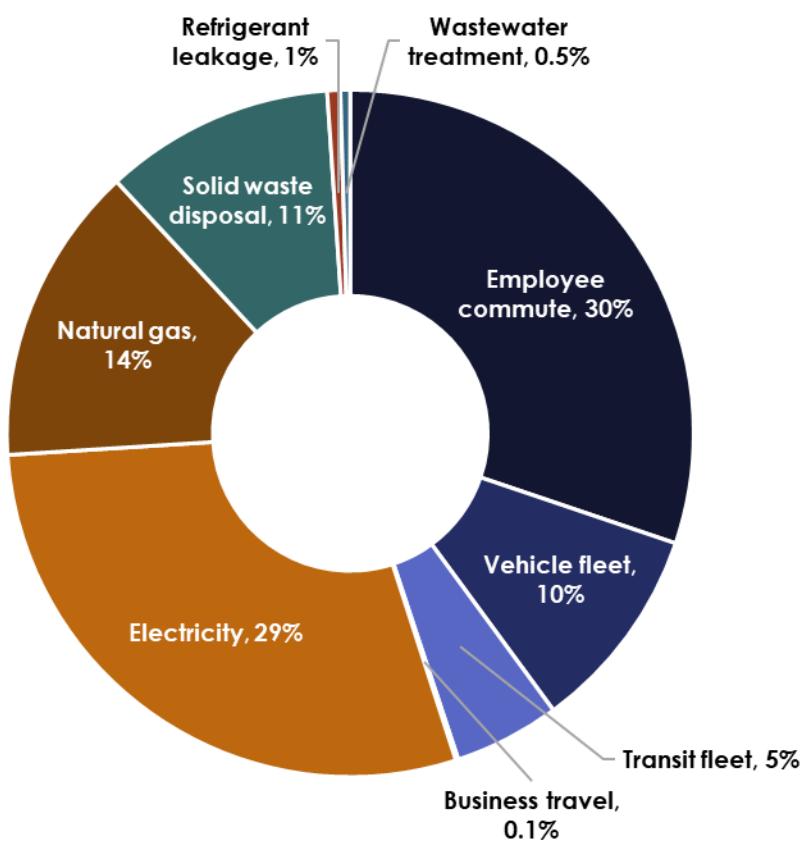
COUNTY OPERATIONS EMISSIONS

County operations were responsible for an estimated 15,031 MTCO₂e in 2022. County operations emissions are not in addition to, but part of community-wide emissions. County operations emissions include emissions from County-owned buildings and facilities. Figure 2 shows the summary of County operational emissions with the top contributors being:

Transportation (45%) stemming from employee commute (30%), vehicle fleet (10%), transit fleet (5%), and business travel (0.1%).

County facility **building energy** (43%) stemming from electricity (29%) and natural gas (14%) consumption.

Figure 2. Los Alamos County operations emissions summary (2022).



INTRODUCTION

Los Alamos County is located on the Pajarito Plateau in northwestern New Mexico and is currently home to approximately 19,400 residents. Residents reside in the townsites of Los Alamos or White Rock within the county. Residents and visitors enjoy recreational activities such as hiking, biking, and skiing in the nearby national forests and mountains. The county is home to Los Alamos National Laboratory (LANL), the county's largest employer, which brings in over 8,000 commuters during the work week.²

COMMITMENT TO SUSTAINABILITY

The County has shown a commitment to sustainability in recent years through the creation of and partnership with the Los Alamos Resiliency, Energy, and Sustainability (LARES) task force. This task force identified sustainability initiatives to achieve net zero greenhouse gas emissions, such as the Climate Action Plan (CAP), increasing renewable energy, and creation of a Zero Waste Plan, among other recommendations. In 2022, the LARES task force published a report with their recommendations: [LARES Task Force Report \(2022\)](#).³

The County has also illustrated its dedication to sustainability through a variety of formal planning efforts including, but not limited to:

- Los Alamos Strategic Leadership Plan (2023 and 2024) – includes priorities for natural resource protection, GHG reduction, carbon-neutral energy supply, water conservation, and waste management.
- [Los Alamos Energy & Water Conservation Plan \(2022-2027\)](#) – outlines goals and objectives for conservation efforts needed from both the supply (Department of Public Utilities, DPU) and the demand (customers).
- [Los Alamos Integrated Resource Plan \(2022\)](#) - outlines a strategy for near-term and long-term power production and the transition to clean energy.
- [Los Alamos Environmental Sustainability Plan \(2017\)](#) – establishes a roadmap for meeting outlined quantifiable sustainability goals.

GREENHOUSE GAS INVENTORY AND ANALYSIS

Performing a comprehensive GHG study is an important first step to setting, reaching, and tracking emissions reduction goals in a CAP. The County performed a community-wide, County operations, and consumption-based inventory. The **community-wide geographic inventory** quantifies emissions that are produced by actions from residents, visitors, schools, County operations, and businesses within a community's geographic boundaries, such as heating and cooling buildings. The **County operations inventory** is an analysis that quantifies emissions that the government has operational control over, such as vehicle fleet. The **consumption-based inventory** quantifies emissions that occur anywhere in the world, so long as they are directly or indirectly a result of the activities of the residents of the county. For a more in-depth analysis of the consumption-based inventory please read the Consumption-Based Emissions Inventory Report.

² [About Los Alamos - Los Alamos County \(losalamosnm.us\)](#)

³ [Resiliency Energy & Sustainability Task Force - Los Alamos County \(losalamosnm.us\)](#)

INVENTORY APPROACH

METHODOLOGY

Los Alamos County's **community-wide inventory** was performed in compliance with *U.S. Community Protocol for Accounting and Reporting of GHG Emissions (USCP)*.⁴ This protocol, developed by ICLEI USA, is the industry standard for quantifying emissions from communities.

The **County operations inventory** was performed in compliance with the *Local Government Operations Protocol for the Quantification and Reporting of GHG Emissions Inventories (LGOP)*.⁵ This protocol was developed to create a standardized method for local governments to quantify its operational emissions.

Emissions were quantified for the **2022 inventory year**, chosen as the most recent year with complete data at the time of this study. The inventory was performed in **ICLEI's ClearPath**, a GHG inventory calculation tool widely used by local governments to quantify community-wide and government operations emissions.⁶

For more information on data collection and inventory methodology see Appendix A: Inventory Methodology.

EMISSIONS SOURCES

Emissions are classified as either **“base sources”** or **“additional sources”**. Base sources are considered required by accepted protocols to be included in an inventory, whereas additional sources may be included voluntarily to represent emissions more completely. Table 1 shows the emissions sources analyzed for the purpose of this study with the base sources bolded.

Table 1. Community-wide and County operations inventory base and additional emissions sources.

Sector	Community-Wide	County Operations
Building Energy	<ul style="list-style-type: none"> • Electricity • Natural gas 	<ul style="list-style-type: none"> • Electricity • Natural gas
Transportation	<ul style="list-style-type: none"> • On-road • Public transit 	<ul style="list-style-type: none"> • County fleet • County employee commute • County business travel
Solid Waste	<ul style="list-style-type: none"> • Landfill 	<ul style="list-style-type: none"> • Landfill
Wastewater	<ul style="list-style-type: none"> • Treatment processes 	<ul style="list-style-type: none"> • Treatment processes
Refrigerants	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • County building refrigerants

⁴ [US Community Protocol | ICLEI USA](#)

⁵ [Local Government Operations \(LGO\) Protocol | ICLEI USA](#)

⁶ [ClearPath | ICLEI USA](#)

COMMUNITY-WIDE EMISSIONS

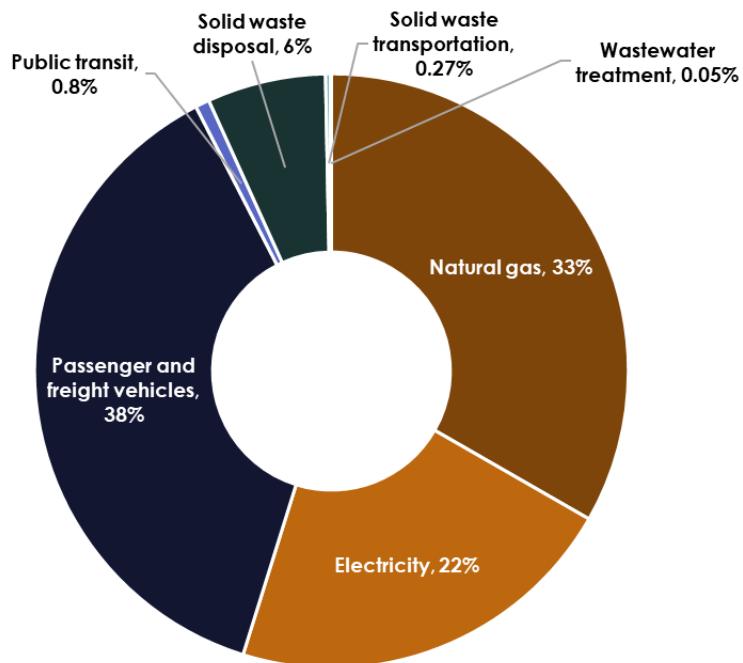
OVERVIEW

Community-wide emissions sources were responsible for an estimated 137,670 MTCO₂e in 2022. These findings indicate that the community's emissions equate to approximately 7 MTCO₂e per capita, which was less than surrounding communities such as, Santa Fe (11 MTCO₂e) and Albuquerque (10 MTCO₂e).^{7,8} Santa Fe and Albuquerque included additional emissions sources such as aviation, railway, and off-road that may drive part of this difference. These per-capita emissions are less than the consumption-based inventory's (21 MTCO₂e) due to the differences in emissions sources and boundaries between the geographic and consumption-based inventories. These per-capita emissions are based on U.S. Census population data and do not include individuals who work, but do not live, in the county or individuals who visit the county.

The community's largest emissions sources in 2022 were from the **building energy** (55%) and **transportation** (38%) sectors. The full breakdown of community emissions is shown in Figure 3.

To the best of our ability, Los Alamos National Laboratory's (LANL) emissions were not included in the community-wide total due to data limitations, but their emissions impact on the community is examined on page 13.

Figure 3. Los Alamos County community-wide emissions summary (2022).



⁷ [Santa Fe Sustainability Dashboard \(santafenm.gov\)](http://santafenm.gov)

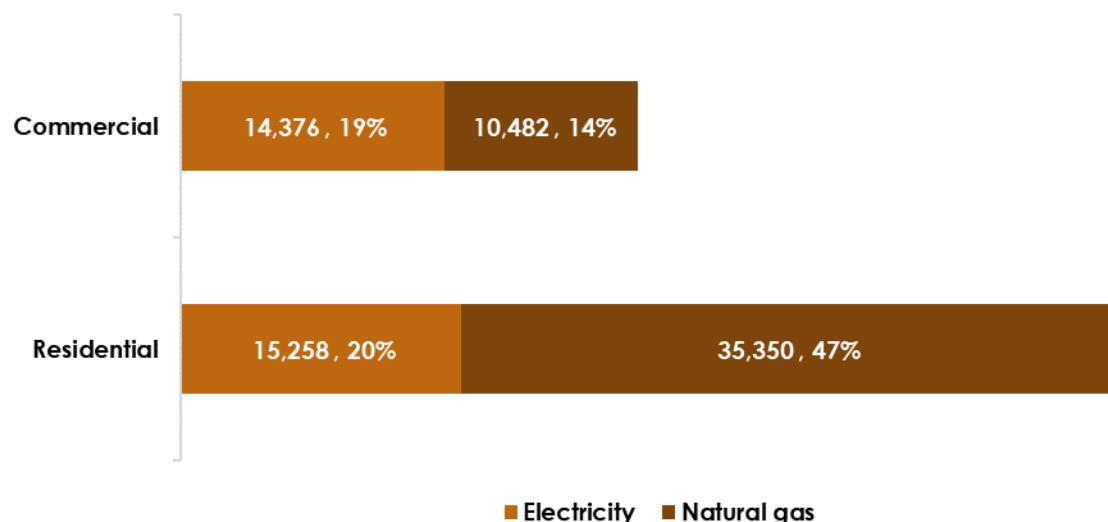
⁸ [city-of-albuquerque-ghg-inventory-3.pdf \(cabq.gov\)](http://cabq.gov)

BUILDING ENERGY

Building energy consumption was responsible for the largest share of community-wide emissions in 2022, contributing an estimated 75,466 MTCO₂e (55%). These emissions occur from the consumption of electricity and natural gas to cool, heat, and power homes and buildings.

- **Residential** energy consumption was the leading contributor to building energy emissions, responsible for an estimated 50,608 MTCO₂e (67% of building energy). Natural gas was the leading source of emissions, contributing 70% to residential energy emissions (see Figure 4).
- **Commercial** energy consumption emitted approximately 24,858 MTCO₂e (33% of building energy) in 2022. Electricity was the leading source of emissions, responsible for 58% of commercial energy emissions (see Figure 4).⁹
- **Natural gas** was the leading overall source of building energy emissions, responsible for approximately 45,832 MTCO₂e (61% of building energy; see Figure 4).
- In 2022, the **electricity grid** was powered by a mix of coal and natural gas (86% of generation) and hydroelectricity (14% of generation).

Figure 4. Community-wide building energy emissions, by sector and fuel type (2022; in MTCO₂e).



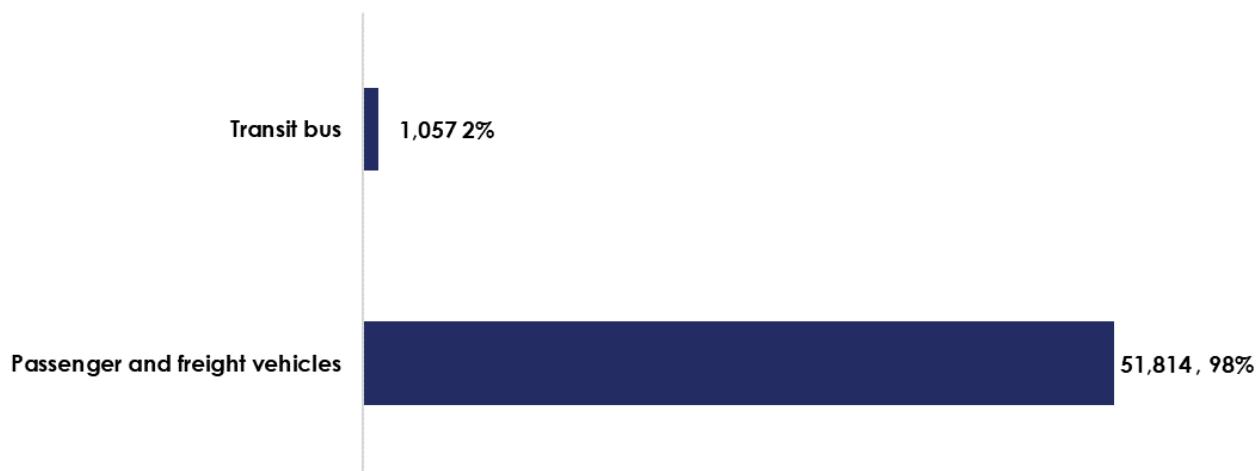
⁹ Some multi-family consumption is classified under commercial rather than residential. Currently, data is unavailable to determine how much of commercial consumption comes from multi-family residential housing.

TRANSPORTATION

Transportation was responsible for the second largest share of 2022 community-wide emissions, contributing an estimated 52,871 MTCO₂e (38%). Transportation emissions result from fuel used to power passenger and freight vehicles and public transit.

- **Passenger and freight transportation** was the leading contributor to transportation emissions, responsible for 51,814 MTCO₂e (98% of transportation; see Figure 5). This stems from an estimated 100,142,740 vehicle miles traveled (VMT) in 2022.
- **Public transit** contributed 1,057 MTCO₂e (2% of transportation) from Atomic City and Park n Ride routes within county boundaries (see Figure 5).

Figure 5. Community-wide transportation emissions, by source (2022; in MTCO₂e).



SOLID WASTE

Solid waste generation and disposal were responsible for an estimated 9,264 MTCO₂e (7%) of 2022 community-wide emissions. Solid waste emissions occur from the transportation of waste to the landfill and from the decomposition of waste in the landfill, which releases methane—a potent greenhouse gas.

- **Disposal** emissions occur from solid waste decomposition in the landfill and was the leading source of solid waste emissions, responsible for an estimated 8,898 MTCO₂e (96% of solid waste; see Figure 6). These emissions stem from the 14,537 tons landfilled in 2022, equating to approximately 0.76 tons per-capita.
- **Transportation** to the landfill contributed the remaining estimated 366 MTCO₂e (4% of solid waste; see Figure 6).

Figure 6. Community-wide solid waste emissions, by source (2022; in MTCO₂e).



WASTEWATER

Wastewater treatment processes contributed an estimated 69 MTCO₂e (0.05%) to 2022 community-wide emissions. These emissions were from the leakage of nitrogen through effluent discharge into waterways at the LA Canyon and White Rock wastewater treatment facilities. Emissions are additionally produced through nitrification (conversion of ammonia to nitrate) and denitrification (conversion of nitrate to nitrogen gas) at the LA Canyon facility.

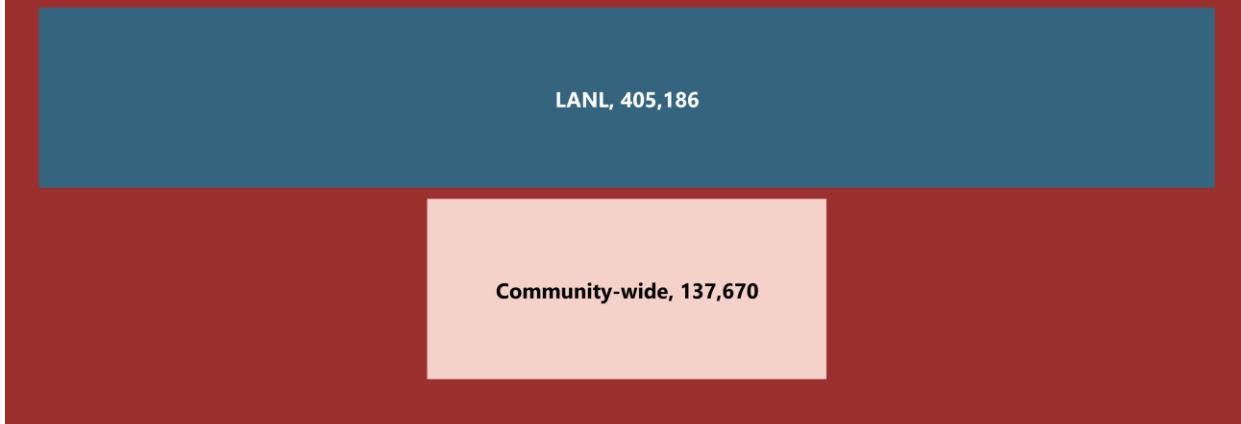
Discussion 1. Los Alamos National Laboratory emissions considerations.

LOS ALAMOS NATIONAL LABORATORY CONSIDERATIONS

The Los Alamos National Laboratory (LANL) is within the geographic boundaries of Los Alamos County and therefore is a contributor to emissions in the county. LANL's emissions were not included in the community-wide total due to data limitations, differing methodologies, and it not being under the County's jurisdiction, but it nonetheless has an emissions impact within the county (see Figure 7).⁹ LANL is a federal entity governed by the Department of Energy and the National Nuclear Security Administration and is subject to specific emissions reporting protocols. In 2022, LANL reported emitting approximately 405,186 MTCO₂e.¹⁰ Approximately 92,568 MTCO₂e stems from electricity that is purchased from Los Alamos Public Utility.¹¹ Combustion of natural gas and fuel oil is responsible for approximately 77,243 MTCO₂e.¹²

While LANL is responsible for a large share of emissions in the county, it is subject to Executive Order 14057 which requires 65% emissions reduction by 2030 and carbon neutrality by 2050.¹³ These goals are in line or greater than the state of New Mexico's emissions reduction goals which are to reduce emissions 45% by 2030.¹⁴

Figure 7. LANL's reported 2022 emissions compared to Los Alamos' 2022 community-wide emissions (in MTCO₂e).



¹⁰ We excluded LANL's consumption of natural gas, electricity, water, and solid waste services. For the purpose of this study, we don't have the ability to separate properties that are being rented to LANL and deemed commercial or LANL's subcontractors whose utility consumption is not included under a LANL account.

¹¹ [Goals & Progress | Environmental Sustainability \(lanl.gov\)](#)

¹² [Reports & Documents Library - Los Alamos County \(losalamosnm.us\)](#)

¹³ [GHG Summary Report \(epa.gov\)](#)

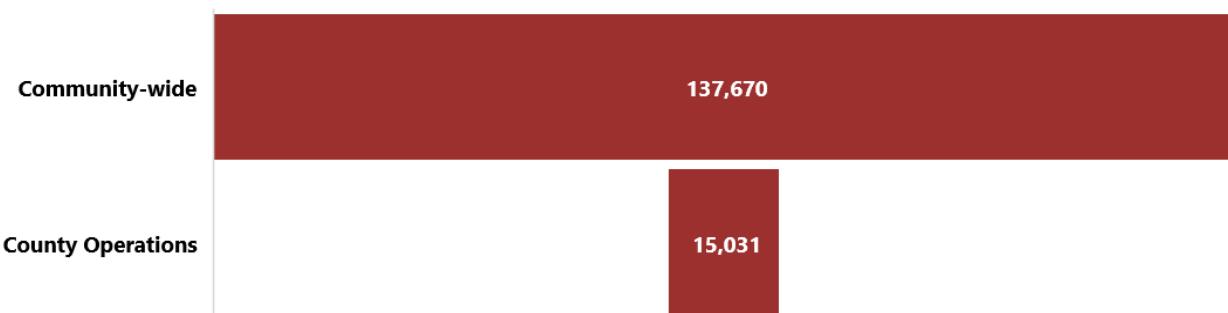
¹⁴ [FACT SHEET: President Biden Signs Executive Order Catalyzing America's Clean Energy Economy Through Federal Sustainability | The White House](#)

COUNTY OPERATIONS EMISSIONS

OVERVIEW

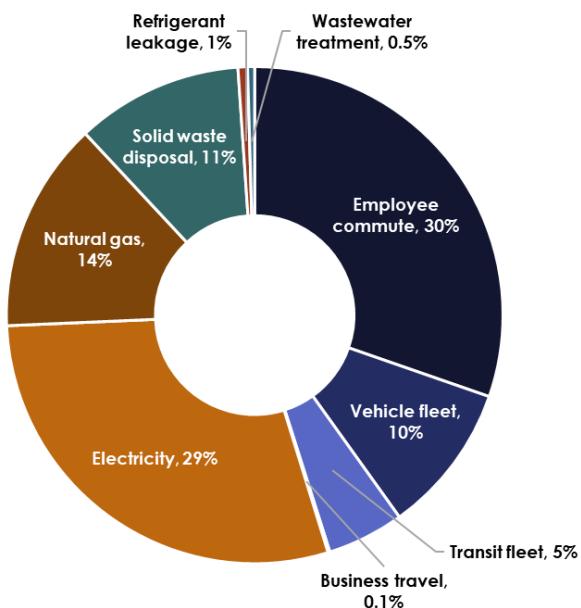
The **County operations inventory** quantifies emissions that the government has operational control over such as facility energy use and fleet vehicles. These emissions are included in the community-wide inventory and therefore are not in addition to community-wide emissions unless the source was not accounted for in the community-wide inventory, such as refrigerants. Of the community's emissions Los Alamos County operations accounted for approximately 15,031 MTCO₂e. Figure 8 provides a comparison of emissions from County operations and community-wide.

Figure 8. Community-wide 2022 emissions compared to County operations 2022 emissions (in MTCO₂e).



The County's largest emissions sources in 2022 occurred from the **transportation** (45%) and **building energy** (43%) sectors. The full breakdown of County emissions is shown in Figure 9.

Figure 9. Los Alamos County operations emissions summary (2022).



TRANSPORTATION

Transportation was the leading source of County operational emissions, responsible for an estimated 6,769 MTCO₂e (45%) from employee commute, vehicle fleet, transit fleet, and employee business travel.

- **Employee commute** was the leading contributor to County transportation emissions, responsible for an estimated 4,537 MTCO₂e (67% of transportation; see Figure 10). This estimate is based on an employee commute survey that asked staff to share about their commuting habits in 2022. The average one-way miles traveled was 29 miles with approximately 83% of employees driving alone (see Figure 11).
- **Vehicle fleet** contributed an estimated 1,464 MTCO₂e (22%) to County transportation emissions (see Figure 10) from on-road and off-road sources. Examples of on-road sources include fleet vehicles such as trucks and examples of off-road sources include equipment such as construction equipment.
- **Transit fleet** contributed an estimated 749 MTCO₂e (11%) to County transportation emissions (see Figure 10) from public transportation sources owned and operated by the County.
- **Employee business travel** contributed the remaining estimated 18 MTCO₂e (0.3%) to County transportation emissions (see Figure 10).

Figure 10. County operations transportation emissions, by source (2022; in MTCO₂e).

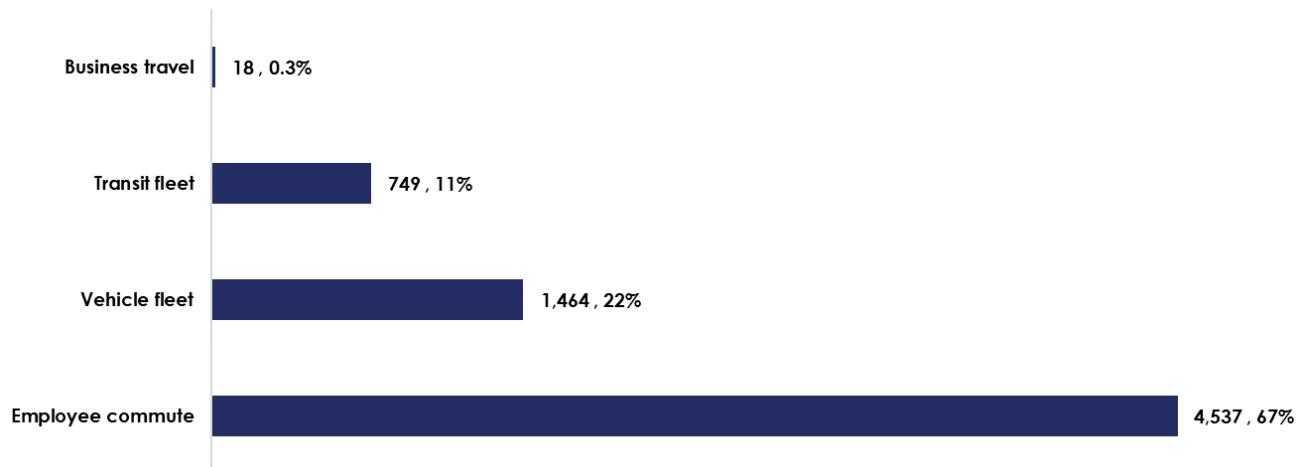
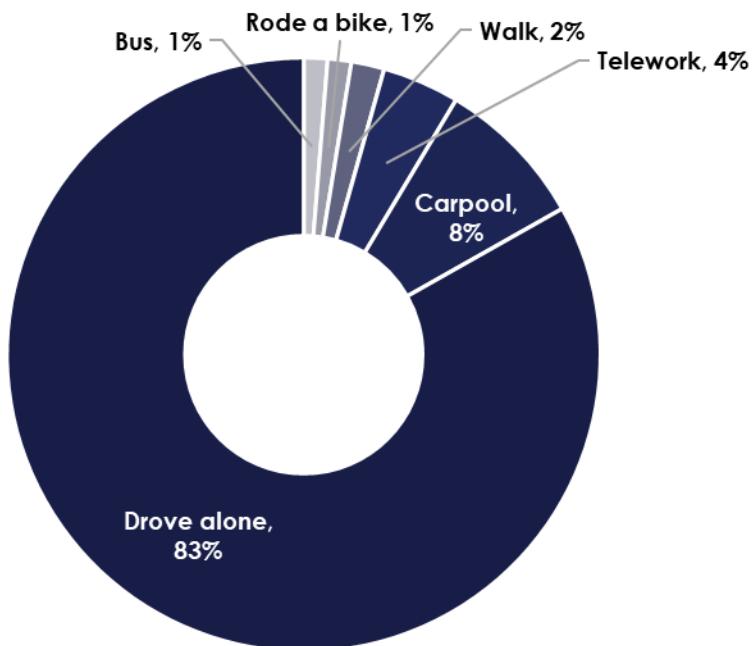


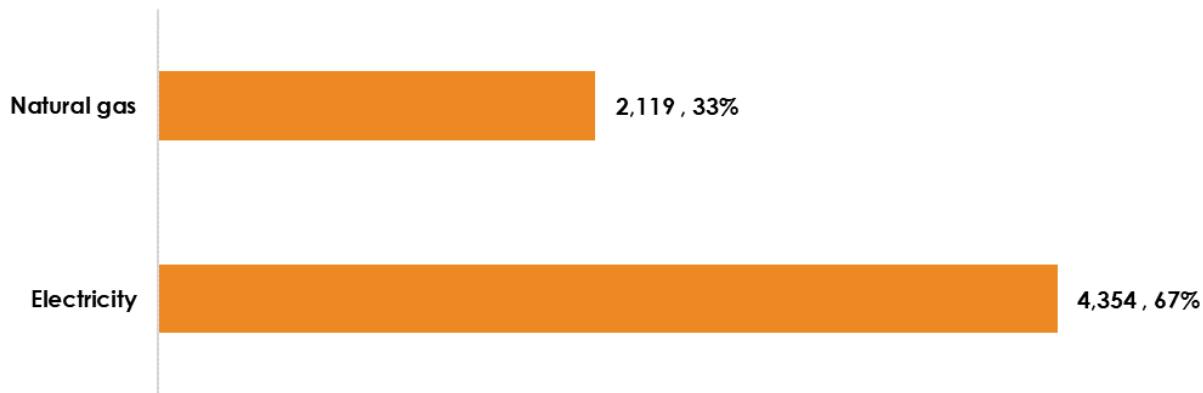
Figure 11. County operations employee commute, by transportation mode (2022).



BUILDING ENERGY

Building energy consumption to power County facilities contributed an estimated 6,473 MTCO₂e (43%) to 2022 County operations emissions. Water production was a significant contributor to these emissions. These emissions stem from the consumption of electricity and natural gas.

- **Electricity** consumption was the leading contributor to County building energy emissions, responsible for an estimated 4,354 MTCO₂e (67% of building energy; see Figure 12).
- **Natural gas** consumption was responsible for the remaining 2,119 MTCO₂e (33% of building energy; see Figure 12).

Figure 12. County operations building energy emissions, by source (2022; in MTCO₂e).

SOLID WASTE

Solid waste generation and disposal from County buildings and facilities in 2022 was responsible for an estimated 1,628 MTCO₂e (11%). These emissions occur from methane leakage during solid waste decomposition in the Waste Management Rio Rancho Landfill.

REFRIGERANTS

Emissions from the leakage of **refrigerants** were responsible for an estimated 93 MTCO₂e (1%) of 2022 County operations emissions.¹⁵ Many refrigerants used in cooling equipment such as air conditioners and refrigeration units create very potent greenhouse gases when leaked from their respective systems.

WASTEWATER

Wastewater treatment was responsible for an estimated 69 MTCO₂e (0.5%) of 2022 County operations emissions. Because the County owns and operates both LA Canyon and White Rock Wastewater facilities, all emissions from these facilities are under the County's jurisdiction and included in the County operations GHG inventory. These emissions stem from the leakage of nitrogen through effluent discharge into waterways, nitrification (conversion of ammonia to nitrate), and denitrification (conversion of nitrate to nitrogen gas).

¹⁵ Emissions from refrigerants were not included in the geographic community-wide inventory because these emissions are an additional source and therefore are not required by protocols to be included. They are included in the County operations inventory because we were able to obtain specific consumption data from the County. This level of data was not available for the community.

RECOMMENDATIONS

The 2022 community-wide and County operations inventories were the County's first GHG inventory analyses. This baseline assessment revealed key focus areas for the greatest emission reduction impact in the CAP. This section presents overarching recommendations for County consideration based on the inventory process and findings.

COMMUNITY-WIDE

The county's largest sources of emissions in 2022 were **passenger and freight transportation** (51,814 MTCO₂e; 38%), **natural gas consumption** (45,832 MTCO₂e; 33%), and **electricity consumption** (29,634 MTCO₂e; 22%). Potential emissions reduction actions within those sectors include those aimed at:

- Reducing vehicle miles traveled per-capita through promotion and expansion of sustainable transportation options, such as biking, walking, and public transportation.
- Expanding electric vehicle infrastructure and adoption.
- Increasing energy efficiency.
- Increasing use of renewable energy.
- Promoting electrification retrofits.
- Considering all-electric building codes for new development.

COUNTY OPERATIONS

Los Alamos County's operations largest source of emissions in 2022 were **employee commute** (4,537 MTCO₂e; 30%), **electricity consumption** (4,354 MTCO₂e; 29%), **natural gas consumption** (2,119 MTCO₂e; 14%), **solid waste disposal** (1,628 MTCO₂e; 11%), and **vehicle fleet** (1,464 MTCO₂e; 10%). Potential emissions reduction actions within those sectors include those aimed at:

- Implementing commute-trip reduction strategies for County employees.
- Increasing energy efficiency.
- Increasing use of renewable energy.
- Performing electrification retrofits.
- Reducing waste generation and increasing waste diversion.
- Electrifying County fleet and equipment.

APPENDIX A: INVENTORY METHODOLOGY

This appendix provides a detailed description of the methodology used to complete the 2022 Los Alamos County geographic community-wide and County operations inventories. The protocols and calculation methods will be detailed below.

INVENTORY PROTOCOLS

Geographic Community-Wide Inventory Protocol

The **U.S. Community Protocol for Accounting and Reporting of GHG Emissions (USCP)** was selected as the calculation methodology for Los Alamos County's **2022 community-wide inventory**.¹⁶ This protocol, developed by ICLEI, was developed for local governments as a guide for calculating GHG emissions from communities. The USCP can be used by communities for several reasons including to:

- Inform climate action planning,
- demonstrate accountability,
- track GHG emissions changes over time,
- and encourage community action.

Community emissions calculated following this protocol account for the GHG emissions occurring within the geographic boundaries of a community. The USCP represents best practices for community GHG inventories by meeting the following objectives:

Measurement	Policy and Actions	Consistency and Comparability
<ul style="list-style-type: none"> • Estimate and report GHG emissions and removals. • Measure progress towards emissions reduction goals. • Align with national and regional goals. 	<ul style="list-style-type: none"> • Allows jurisdictions to make informed pathways on emissions reduction. • Aids in engagement with the community on reducing GHG emissions. 	<ul style="list-style-type: none"> • Allows for consistency in inventory calculations • Allows comparability between future and past inventories. • Presents transparency in methodology.

¹⁶ [US Community Protocol | ICLEI USA](#)

The USCP quantifies emissions as either “base sources” or “additional sources” defined by protocol requirements. The USCP requires inclusion of emissions from the following “base” emissions sources:

- use of electricity by the community,
- use of fuel in residential and commercial stationary combustion equipment,
- on-road passenger and freight motor vehicle travel,
- use of energy in potable water and wastewater treatment and distribution, and
- generation of solid waste by the community.

A local government may opt to include additional emissions sources in their inventories to represent their emissions footprint more accurately. Examples of some of these additional emission sources include those from agricultural activities, such as cropland management and fertilizer use, and emissions from wastewater treatment processes.

County Operations Inventory Protocol

The **Local Government Operations Protocol (LGOP)** was selected as the calculation methodology for Los Alamos County’s **2022 County operations inventory**.¹⁷ The LGOP allows a local government to complete its GHG inventory using either an operational or financial control approach for claiming responsibility for emissions. Los Alamos County used the **operational control approach** for the 2022 County operations inventory, as recommended by the LGOP. Under this approach, local governments report the GHG emissions that are produced by facilities and sources they own, operate, and have full authority to determine operational policies and processes.

This protocol provides the structure needed for relevant, complete, consistent, transparent, and accurate emissions reporting that can be credibly compared across local governments. The LGOP provides guidance, with multiple calculation methods, for emissions quantification for each emission source, based on the data available.

CALCULATION METHODOLOGY

Community-Wide Inventory

Building Energy

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
Electricity	kWh consumed	LAC Department of Public Utilities	Utility-specific	LAC Department of Public Utilities
Natural Gas	Therms consumed	LAC Department of Public Utilities	National average	ClearPath ¹⁸

¹⁷ [Local Government Operations Protocol for Greenhouse Gas Assessments | California Air Resources Board](#)

¹⁸ [ClearPath | ICLEI USA](#)

Transportation

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
Passenger and freight	Vehicle miles traveled (VMT) within geographic bounds	NMDOT ¹⁹	National average factors by state average fuel and vehicle types	EPA ^{20,21} EIA ²² BTS ²³
Public transit	Transit VMT and gallons consumed	Transit manager	National average by fuel and vehicle type	EPA

Solid Waste

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
Disposal	Tons landfilled	LAC Environmental Services Division	National averages by material type	EPA WARM ²⁴ Los Alamos specific waste characterization
Transportation to landfill	VMT to landfill	LAC Environmental Services Division	Landfill specific	EPA WARM LAC Environmental Services

¹⁹ NMDOT references the USDOT traffic monitoring guide as the methodology to determine VMT: [Traffic Monitoring Guide - Policy | Federal Highway Administration \(dot.gov\)](#)

²⁰ [Download the State Inventory and Projection Tool | US EPA](#)

²¹ [emission-factors_mar_2018_0.pdf \(epa.gov\)](#)

²² [U.S. Energy Information Administration - EIA - Independent Statistics and Analysis](#)

²³ [Average Fuel Efficiency of U.S. Light Duty Vehicles | Bureau of Transportation Statistics \(bts.gov\)](#)

²⁴ [Versions of the Waste Reduction Model | US EPA](#)

Wastewater

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
LA Canyon	Wastewater treatment type and gallons treated	LAC Department of Public Utilities	National average by treatment type	ClearPath
White Rock	Wastewater treatment type and gallons treated	LAC Department of Public Utilities	National average by treatment type	ClearPath

County Operations Inventory

Transportation

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
Employee Commute	VMT by County employees during their commute by vehicle type	Employee Commute Survey	National average by fuel and vehicle type	EPA
Vehicle Fleet	VMT and/or gallons consumed by County fleet	LAC Fleet Manager	National average by fuel and vehicle type	EPA
Transit Fleet	VMT and/or gallons consumed by Transit fleet	LAC Fleet Manager	National average by fuel and vehicle type	EPA
Business Travel	VMT and/or gallons consumed for business travel	LAC Procurement	National average by fuel and vehicle type	EPA

Building Energy

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
Electricity	kWh consumed at County-owned facilities	LAC Department of Public Utilities	Utility-specific	LAC Department of Public Utilities
Natural Gas	Therms consumed at County-owned facilities	LAC Department of Public Utilities	National average	ClearPath

Solid Waste

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
Disposal	Tons landfilled from County-owned facilities	LAC Environmental Services Division	National averages by material type	EPA WARM Los Alamos specific waste characterization

Refrigerants

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
Refrigerants	Volume of refrigerants used to refill cooling equipment in County-owned facilities	LAC Facilities Division	National averages GWP	California Air Resources Board (CARB) ²⁵

²⁵ [High-GWP Refrigerants | California Air Resources Board](#)

Wastewater

Emissions Source	Activity Data	Activity Data Source	Emissions Factor	Emissions Factor Source
LA Canyon	Wastewater treatment type and gallons treated	LAC Department of Public Utilities	National average by treatment type	ClearPath
White Rock	Wastewater treatment type and gallons treated	LAC Department of Public Utilities	National average by treatment type	ClearPath

APPENDIX B: INVENTORY SCOPES

Greenhouse gas (GHG) emissions can be categorized into three scopes:

- **Scope 1** emissions are direct emissions from stationary or mobile combustion which occur from sources such as natural gas consumption and vehicle miles traveled.
- **Scope 2** emissions are indirect emissions that occur from the purchase of grid electricity.
- **Scope 3** emissions are indirect emissions that occur from activities that occur outside of the county's geographic boundaries, such as from an out-of-boundary landfill or those which the County has less influence over such as employee commute.

The GHG emissions included in the community-wide and County operations are categorized by scope in the table below.

Scope	Community-Wide	County Operations
Scope 1	<ul style="list-style-type: none"> • Natural gas • Natural gas distribution loss • Passenger and freight transportation • Public transportation • In-boundary wastewater treatment 	<ul style="list-style-type: none"> • Natural gas • Vehicle fleet • Transit fleet • Refrigerants • In-boundary wastewater treatment
Scope 2	<ul style="list-style-type: none"> • Grid-supplied electricity 	<ul style="list-style-type: none"> • Grid-supplied electricity • Electricity transmission and distribution loss
Scope 3	<ul style="list-style-type: none"> • Electricity transmission and distribution loss • Out-of-boundary solid waste transportation and disposal 	<ul style="list-style-type: none"> • Natural gas transmission and distribution loss • Employee commute • Employee business travel • Out-of-boundary solid waste disposal



APPENDIX B.

Consumption-Based GHG Emissions Inventory Report



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Glossary

Category	CBEI emissions are categorized into 5 categories: transportation, housing, food, goods, services
CBEI	Consumption-based emissions inventory - an estimate of the greenhouse gas emissions associated with the activity of all residents of a geographic area
Emissions	Refers to greenhouse gas emissions (see <i>GHG</i>)
GHG	Greenhouse gas - a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect
MTCO ₂ e	Metric ton (i.e. 1,000 kilograms) of carbon dioxide equivalent – the common unit for GHG emissions
Per Capita Emissions	GHG emissions per person
Sub-category	Each CBEI emissions category consists of multiple sub-categories
VMT	Vehicle miles traveled

Executive Summary

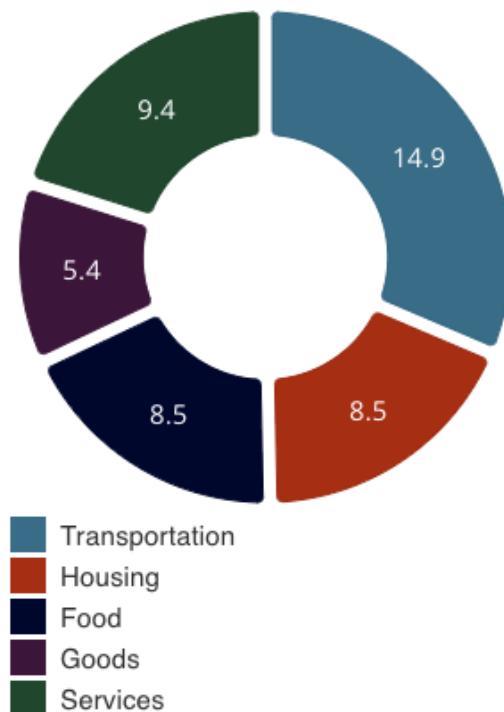
Los Alamos County completed a consumption-based emissions inventory ("CBEI"), estimating the greenhouse gas emissions associated with the household consumption of all residents. These emissions are broken out into five categories: transportation (including driving and air travel), housing (including home construction and household energy use – electricity and natural gas), food (including meat, dairy, fruits & vegetables, cereals & bakery products, and other foods), services (including healthcare and education), and goods (including furnishings and appliance and other miscellaneous goods).

In Los Alamos County in 2022, the typical household was responsible for roughly 46.7 metric tons of CO₂e annually (MTCO₂e), or about 20 MTCO₂e per person. With 7,999 households in the county, this is a total of about 374,000 MTCO₂e attributable to residents of Los Alamos County. In contrast, the community-wide inventory totaled only 135,997 MTCO₂e. Los Alamos County's consumption-based emissions are nearly three times greater than its sector-based emissions.

Transportation made up 32% of emissions, followed by services at 20%, housing at 18%, food at 18%, and goods at 12%, as shown in Figure 1. The largest sub-categories of gasoline, healthcare, and natural gas comprised more than 44% of emissions.

Los Alamos County's household consumption is driven by a variety of factors, but high household income, high vehicle ownership, and high educational attainment are major drivers of consumption-based emissions. There is also significant geographic variation across the county – the community of downtown Los Alamos has a typical household footprint of only 35 MTCO₂e, while the average White Rock household emissions were over 56 MTCO₂e. While local data are used to estimate consumption (household spending), the emissions per dollar spent on various goods and services were assumed to be the same as the national average.

Figure 1. Los Alamos 2022 Community-Wide CBEI Summary (MTCO₂e)



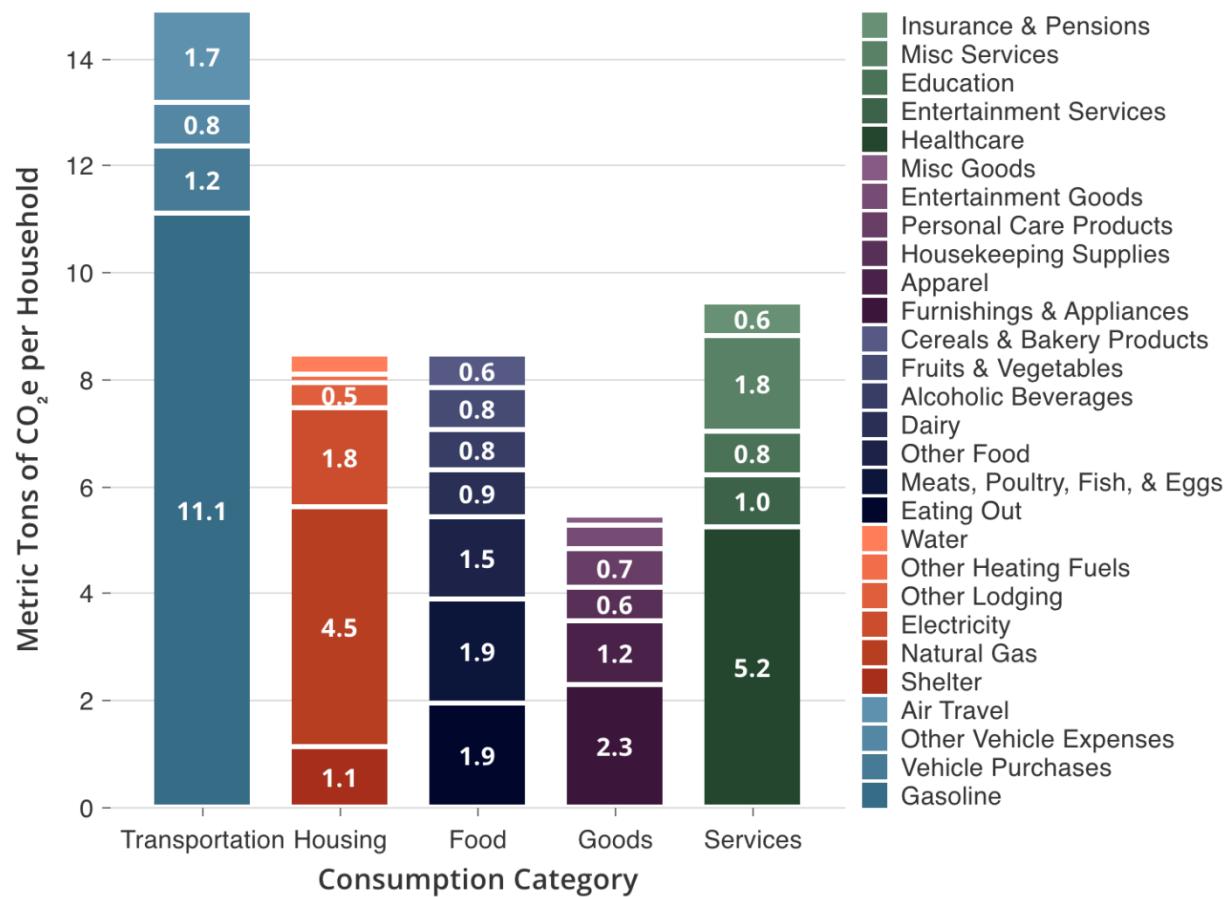
Introduction

A CBEI is an estimate of the greenhouse gas emissions associated with the consumption of all residents of a geographic area. It's equivalent to a personal household carbon footprint estimate, except calculated for all households in a jurisdiction. Consumption-based emissions are modeled based on local variables such as income and vehicle ownership, and on scientific studies that tie these variables to changes in consumption-based emissions. These models which use local variables primarily predict household expenditures on various goods and services. Data from the US Environmental Protection Agency (EPA) is used to estimate the emissions associated with every dollar of expenditure, but was only available for national averages at the time this inventory was prepared.

In Los Alamos County in 2022, the typical household was responsible for roughly 47 MTCO₂e, or about 20 MTCO₂e per person. With 7,999 households in the county, this is a total of roughly 374,000 MTCO₂e attributable to residents of Los Alamos County.

The bar chart below provides an overview of the county's average per-household emissions in 2022. The actual emissions of any particular household, however, could vary significantly from this average. Differences in household size, spending, housing, travel, and other discretionary and non-discretionary factors will affect any individual household's emissions.

Figure 2. Los Alamos County 2022 Consumption-Based Emissions Inventory



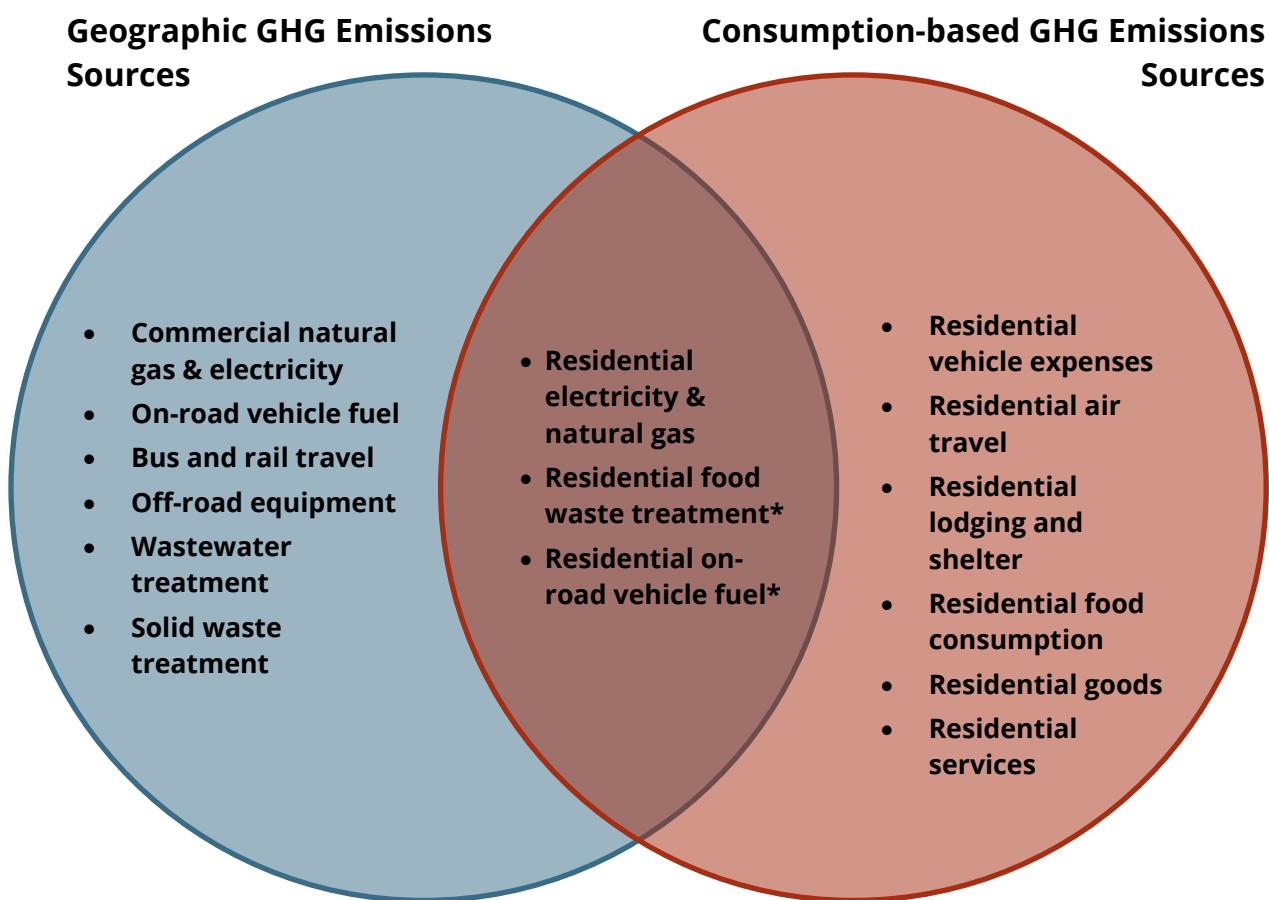
Consumption-Based Emissions Approach

CBEIs differ from traditional greenhouse gas inventories. In traditional sector-based or "geographic" inventories, a county would look at all emissions that occur within the county's borders. In contrast, CBEIs consider emissions that may occur anywhere in the world, if they are directly or indirectly a result of the activities of the residents of the county.

Geographic and consumption-based approaches are complementary and partially overlapping. Both will look at resident's local, direct emissions (e.g., from driving or home heating). A geographic inventory will also consider the emissions from local businesses and visitors, but ignore anything outside the county's boundaries. Meanwhile, a consumption-based inventory will omit the local emissions from businesses and visitors, but instead account for emissions associated with resident's travel to other cities, as well as the emissions associated with producing

the goods and services they purchase or consume. Those consumption-based emissions may occur anywhere in the world.

Figure 3. Geographic vs. Consumption-Based Emission Sources



*Different methodologies are used to quantify these emissions in each inventory.

These consumption estimates are developed using a model that primarily considers six key household variables:

- household size (people per household),
- household income,
- vehicle ownership (cars per household),
- home size (rooms per home),
- educational attainment (bachelor's degree or higher for at least one member of the household), and
- home ownership.

These variables often have clear, direct effects on consumption. For instance, larger homes generally take more energy to heat or cool, while more people per household also means more food consumed per household.

The table below compares the estimated values of these variables in Los Alamos County with the US averages as of 2022. Data for Los Alamos County are extrapolated from American Community Survey (ACS) 5-year estimates using linear least-squares regression, while US averages are from the ACS 1-year estimates. The 95% margin of error represents the uncertainty range for the average household, and not the range for households in the community as a whole (of which many or all could be well outside the uncertainty range around the average), and is propagated from ACS margin of errors.

Table 1. Estimated household characteristics, Los Alamos County vs. United States (2022)

Household Characteristic	Los Alamos County Average (estimated)	95% Margin of Error	US Average
Household Income	\$151,588	± \$12,235	\$99,843
Vehicle Ownership	2.14	± 0.11	1.82
Household Size	2.37	± 0.06	2.57
Home Size (rooms)	6.83	± 0.27	6.44
Home Ownership	72%	± 3.4%	65%
Educational Attainment	74%	± 5.3%	38%

The emissions profile for Los Alamos County is based on an average household in 2022, using the overall average household characteristics for Los Alamos County. Most actual households in the county differ in one or more ways. For Los Alamos County, the average household has 2.37 people, living in a 6.83-room home, with 2.14 vehicles and an annual income of \$151,588. Households with different characteristics are expected to have different emissions profiles.

Individual households may estimate their carbon footprint by using personal household carbon footprint calculators, such as the one provided by the University of California at Berkeley's CoolClimate Network: <https://coolclimate.org/calculator>

For a more detailed breakdown of how these and other factors affect emissions, see Appendix A: Methodology.

Comparison with Other Communities

Los Alamos' CBEI, at 47 MTCO₂e per household, is slightly higher than the US average of 43 MTCO₂e per household, driven by the household characteristics discussed above. Los Alamos' household emissions are typical for suburban communities, which are often wealthier, have larger homes and household sizes, and are more auto-dependent than either urban cores (smaller homes and fewer cars) or rural areas (lower income).

Table 2 shows some other US communities that have prepared CBEIs using a comparable methodology, and how a few of their key household characteristics compare.

Table 2. Los Alamos County CBEI vs Other Communities

Community & Year	Average Household Emissions (MTCO ₂ e)	Average Income	Vehicles per Household	Home Size (rooms)
Los Alamos County, NM (2022)	47	\$151,588	2.14	6.83
Austin, TX (2021)	37	\$109,077	1.57	4.93
New York City, NY (2019)	29	\$99,054	0.62	4.62
Clallam County, WA (2019)	35	\$69,587	2	6.4
Pierce County, WA (2019)	45	\$97,401	2.05	6.22

Urban communities like Austin, TX and New York, NY have lower per-household emissions primarily due to a combination of lower vehicle ownership and lower

income. They also have smaller home sizes, which frequently correlates with smaller household sizes as well. Clallam County, a rural community on the Olympic Peninsula, has similar vehicle ownership and home size but significantly lower household income; it also uses almost entirely zero-emission electricity (provided by Washington state hydroelectric dams) and does not have any natural gas in the county. As a result, it also has noticeably lower emissions. Pierce County, a suburban community south of Seattle that includes the City of Tacoma, WA, has emissions most comparable to Los Alamos County: while it has somewhat lower income than Los Alamos County, it has similar vehicle ownership and home size. Pierce County also has more emissions-intensive electricity than other parts of Washington State (including coal-fired electricity).

Major Consumption Categories and Detailed Breakdown

Among all categories, transportation, services, and housing are the largest overall categories, accounting for 32%, 19%, and 17% of emissions, respectively. Together, these account for over 70% of total emissions. Within sub-categories, gasoline, healthcare, and natural gas are the top three, accounting for 24%, 11%, and 10% of total emissions, respectively - a combined 45%.

The following sections discuss each category in greater detail, along with further discussions of some specific sub-categories of particular interest.

Transportation

The transportation category includes gasoline usage, vehicle purchases & maintenance, and air travel. For an average household in Los Alamos County, transportation accounts for 14.9 MTCO₂e per year, per household. Much of this comes from gasoline, which accounts for 11.1 MTCO₂e, or 74% of the total transportation emissions.

Gasoline

Gasoline consumption is the top source of emissions in Los Alamos County, responsible for roughly 11 MTCO₂e per household. There are two key components that drive gasoline consumption: vehicle ownership and the amount of driving per vehicle.

Nationwide, the US average is about 1.8 vehicles per household¹. A typical vehicle is driven over 11,000 miles per year², and so the average American household drives roughly 20,514 miles per year.

Meanwhile, Los Alamos County households have an average of 2.14 vehicles per household, and drive an estimated 23,146 miles per year, or about 13% more than average. On a per person basis, this is roughly 9,766 miles per person, or 22% higher than the national average of 7,982 miles per person.

Given its geography, Los Alamos County residents are generally car dependent, with few ways to travel outside the county without a car. Roughly 75% of workers drive alone to work, similar to the national average, with a roughly 14 minute commute to work. Walking, biking, and public transit commute modes each comprise only about 2-3% of workers.

Air Travel

For many individual households, air travel is a significant portion of emissions. However, for Los Alamos County overall, air travel is only a small part of the county's consumption-based emissions, coming in at 1.7 MTCO₂e per household on average (3.6% of total emissions). This varies significantly between households, however, largely due to income: air travel is a luxury for most households, and only the wealthiest households do substantial flying.

According to Gallup survey data, between 1999 and 2015, 48-60% of the US population did not fly in any given year³. More recent data from Statista.com suggests that in 2019, 41% of the US population 18 and up had never traveled by air, and another 28% flew only about once per year⁴.

Air travel in a mostly full aircraft is more fuel efficient than driving alone, but the high-altitude pollution released is uniquely damaging to the environment and can make flying worse than driving. Most modern aircraft get roughly 70-100 miles per gallon per passenger seat⁵, with fuel economy improving for longer flights. In comparison, the average fuel economy for new vehicles nationwide was 25.4 miles

¹ 2019 American Community Survey (ACS) 5-Year Estimates: <https://data.census.gov/table>

² Alternative Fuels Data Center (AFDC), <https://afdc.energy.gov/data/10309>

³ Gallup, Airlines: <https://news.gallup.com/poll/1579/airlines.aspx>

⁴ Statista, Air travel frequency in the United States in 2019:

<https://www.statista.com/statistics/539473/airline-travelers-number-of-trips/>

⁵ Wikipedia, Fuel Economy in Aircraft:

https://en.wikipedia.org/wiki/Fuel_economy_in_aircraft#Regional_flights

per gallon in 2020⁶. However, due to additional climate effects from high-altitude particulate matter, as well as lifecycle production of aviation fuels, air travel's overall emissions are roughly double what would be expected on a per gallon basis alone, making it more like driving a 35-50 miles per gallon car. As a result, air travel may be more fuel-efficient than driving alone in an average vehicle, but usually not for two or more individuals traveling together, or for a single individual in a very efficient or all-electric vehicle. Very short flights (less than 300 miles) typically have extremely poor fuel economy, and may not be more fuel efficient than driving alone in an average vehicle.

Air travel often results in significant emissions due to the long distances traveled.

Housing

Household energy use, home construction and maintenance (shelter), water, and waste make up the Housing category. Overall, a typical Los Alamos County household has about 8.2 MTCO₂e resulting from housing, with the largest single category being natural gas. Natural gas produces 4.5 MTCO₂e, or 55% of the total housing emissions.

Electricity

Los Alamos County's electricity emissions derive from Los Alamos Department of Public Utilities (DPU) data showing an average electricity usage of 7,569 kWh per household and an average electricity emissions factor of 244 grams per kWh in 2022, resulting in about 1.8 MTCO₂e of emissions per year per household.

The DPU data does not accurately identify all multifamily residential accounts as residential – some are classified as commercial. Households living in multifamily buildings tend to use less energy than households living in detached single-family buildings, so the actual average household electricity use is likely somewhat lower than this estimate of 7,569 kWh per household.

Los Alamos County Assessor data suggests that virtually no households use electricity for heating, although American Community Survey data (a self-reported survey) consistently reports about 10-12% of households claim to use electricity for heating.

⁶ Environmental Protection Agency, Highlights of the Automotive Trends Report: <https://www.epa.gov/automotive-trends/highlights-automotive-trends-report>

Natural Gas

Natural gas is a common fuel for home heating, water heating, clothes drying, and cooking. The primary ingredient of natural gas is methane (CH₄), a potent greenhouse gas. Most GHG emissions associated with natural gas result from burning the gas to produce heat, which also emits carbon dioxide (CO₂). In addition, some methane is leaked into the atmosphere during the extraction, processing, and transport (piping) of natural gas into homes.

Burning natural gas in homes not only contributes to CO₂ emissions, but it also contributes to local indoor and outdoor air pollution. Natural gas combustion produces carbon monoxide, nitrogen dioxide, fine particulate matter (PM_{2.5}), and formaldehyde, among other pollutants⁷. When burned in furnaces for heating or water heating, these fumes are vented into the surrounding neighborhood, where they generally disperse at low concentrations. When burned in a gas stove or oven, these fumes are emitted directly into residential living spaces, which are often not adequately vented. As a result, gas stoves can lead to dangerously elevated levels of indoor air pollution⁸. Even moderately well-ventilated homes with gas stoves can have elevated levels of air pollutants that have increase the risk of asthma in children and exacerbate asthmatic symptoms in adults⁹.

Methane extraction, transport, storage, and distribution systems nationwide typically have small leaks. Methane itself is a much more potent greenhouse gas than CO₂. One ton of methane has the same warming impact as nearly 30 tons of CO₂ when considered over a 100-year time frame, and 80-90 tons of CO_{2e} when considered over a 20-year time frame. As a result, if even just 5% of methane is lost to leaks, it would mean that the leaked methane is a bigger contributor to climate change than the CO₂ from burning the other 95%. In 2022, emissions from natural gas leakage were estimated to increase overall emissions from natural gas by about 14%¹⁰.

Nationally, the Environmental Protection Agency (EPA) estimates about half of all methane leaks occur in production, with another 25% occurring in transmission

⁷ California Air Resources Board, "Combustion Pollutants & Indoor Air Quality"
<https://ww2.arb.ca.gov/resources/documents/combustion-pollutants-indoor-air-quality>

⁸ Rocky Mountain Institute, "Gas Stoves: Health and Air Quality Impacts and Solutions"
<https://rmi.org/insight/gas-stoves-pollution-health/>

⁹ American Journal of Respiratory and Critical Care Medicine, "Indoor air pollution and asthma. Results from a panel study." <https://www.atsjournals.org/doi/abs/10.1164/ajrccm.149.6.8004290>

¹⁰ US EPA, "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019"
<https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019>

and storage¹⁰. Distribution and post-meter leakage each contribute about 10% to the overall leakage rate.

Natural gas usage for Los Alamos County is roughly 743 therms per household, resulting in 4.5 MTCO₂e. This number is based on Los Alamos Department of Public Utilities data on therms used per residential customer, combined with ACS estimates suggesting roughly 82% of households in the county use gas for heating. LADPU's data shows that households that use natural gas typically use about 906 therms.

Water

The average household in Los Alamos County uses an estimated 72,010 gallons per year, based on data from LADPU. With an estimated emissions factor of 5.6 grams of CO₂e per gallon, the average household has roughly 0.41 MTCO₂e associated with their water use. Most of these emissions are associated with energy used to pump water up to the mesa, as well as energy used to clean and treat water (both for potable use and sewage). Overall, water consumption is not a major contributor to consumption-based emissions, but still has other resource and environmental implications.

Food

The Food category includes all food consumed by residents of Los Alamos County, broken down by meat, dairy, fruits & vegetables, and other foods consumed at home, as well as eating out. Food accounts for about 8.5 MTCO₂e, and the single largest sub-category is meats, poultry, fish, and eggs at 1.9 MTCO₂e, or 22% of total food emissions.

Globally, roughly 24% of greenhouse gas emissions are a result of agriculture, forestry, and other land use changes, with the majority of these emissions resulting from agriculture. In the US, agriculture resulted in roughly 623 million MTCO₂e in 2019, or about 10% of national emissions (according to the US EPA's most recent national inventory¹⁰).

Emissions from agriculture are driven primarily by two sources. In the US, most agricultural emissions derive from nitrous oxide (N₂O), a greenhouse gas that is released from the breakdown of nitrogen-based fertilizers. N₂O accounts for roughly 55% of US agricultural greenhouse gas emissions.

The second-largest source of agricultural emissions is methane (CH₄), a potent greenhouse gas which is produced by certain animals like cows, sheep, and goats. These animals rely on microbes to break down the grass and other plants they eat, in a process known as enteric (intestinal) fermentation. This digestive fermentation produces methane as a byproduct, much in the same way that beer fermentation produces CO₂ as a byproduct. Methane from digestion accounts for nearly 30% of the US GHG emissions from agriculture¹⁰. The decomposition of animal manure (also into methane) contributes another 12% of agriculture emissions¹⁰. Nitrous oxide and methane combined account for 97% of emissions directly associated with agriculture¹⁰.

The consumption-based emissions inventory includes these direct nitrous oxide and methane emissions from agriculture, emissions from fixed capital investments in agricultural equipment and facilities, as well as emissions associated with transport and sale of food. In the consumption-based emissions inventory, direct emissions from agriculture are the majority of the emissions associate with food. Generally around 80-95% of food emissions come directly from food production (see Appendix C: Emissions Breakdown by Supply Chain Stage). For most foods, transportation comprises about 5% of the emissions, while wholesale and retail make up another 5-15%. Fixed capital investments (e.g. buildings and equipment) are estimated around 13% of total emissions, across the production, transport, and sale life-cycle stages.

While N₂O from nitrogen fertilizer is the single largest source of agricultural emissions nationally, meat & dairy are often the largest sources of at-home food emissions for households. In Los Alamos County, meat, poultry, fish, eggs, and dairy combined account for 2.8 MTCO₂e of emissions, while fruits & vegetables, cereals, and other foods account for 3 MTCO₂e.

Despite being only a small fraction of overall calories consumed, meat & dairy have an outsized impact on the typical household's emissions associated with food. This is because the emissions associated with meat consumption not only includes the direct methane emissions from the animals, it also includes the nitrous oxide emissions from growing all of the crops to feed those animals.

It takes a lot of feed crop, mostly corn¹¹, to produce one calorie of meat. In the case of beef, it can be as many as 33 calories of feed per calorie of beef¹². As a result, a quarter pound of beef (284 calories) could require over 9,000 calories of corn to produce.

Further compounding these food emissions is the fact that an estimated 30-40% of food goes to waste¹³. Emissions from the production of wasted food is included in the overall emissions associated with food, driving up the emissions of all food consumption. While some of this loss occurs in production, storage, or transport, households are often also a significant source of food waste. According to the United Nations, US households purchase more calories per capita than any other country - nearly 3,800 calories per person per day in 2018¹⁴. This includes all purchased food, whether consumed or otherwise.

Eating out, such as at restaurants, also contributes to a portion of food emissions. For the typical Los Alamos County household, eating out is associated with roughly 1.9 MTCO₂e per year. However, this includes not only all the food consumed while eating out, but also the operational emissions from restaurants, including emissions from cooking, transportation, and construction of the building. In comparison, household emissions from cooking, transportation, and construction are allocated to the transportation and housing sectors. Overall, eating out is likely similar emissions per calorie as food prepared at home; however, restaurants across the US often also serve much larger portions than are typically consumed at home, which can lead to further food waste or excess.

Goods

Goods includes all physical items purchased by households (excluding items in other categories, like food & fuel). Goods includes things like furniture, personal electronics, clothing, toys, and books. These goods account for 5.4 MTCO₂e per household per year. Of these goods, furnishings & appliances is the single largest source, making up 2.3 MTCO₂e, or 42%, of total goods.

¹¹ US Department of Agriculture, "Feedgrains Sector at a Glance"

<https://www.ers.usda.gov/topics/crops/corn-and-other-feedgrains/feedgrains-sector-at-a-glance/>

¹² A Shepon et al 2016 *Environ. Res. Lett.* **11** 105002 <https://iopscience.iop.org/article/10.1088/1748-9326/11/10/105002/pdf>

¹³ US Department of Agriculture, "Food Waste FAQs" <https://www.usda.gov/foodwaste/faqs>

¹⁴ United Nations Our World in Data, "Food Supply" <https://ourworldindata.org/food-supply>

Generally, goods have lower emissions per dollar than food or energy. Households with higher incomes tend to spend more money (as well as a greater fraction of their income) on these various goods and services. Homeowners also tend to spend more on home furnishings and equipment.

In Los Alamos County, the largest sources of emissions from goods comes from household furnishings and equipment (including miscellaneous household equipment, furniture, and appliances), as well as apparel (clothing). Most of these emissions generally occur during manufacturing, with only a small amount associated with the transport or sale of the items.

At this time, data is not readily available on the differences between locally manufactured products versus products made elsewhere in the US, or on any differences between goods purchased in person versus online. However, there is limited manufacturing in Los Alamos County itself. In addition, goods purchased online may travel less efficiently than goods purchased in stores, but stores have additional emissions associated with maintaining the building space. For more information, see Appendix B: Emissions Breakdown by Supply Chain Stage.

Services

Services includes the emissions associated with things like healthcare, education, insurance & finance, and entertainment experiences like concerts and museums. Services account for 9.4 MTCO₂e per household, and the single largest category is healthcare at 5.2 MTCO₂e, or 56%.

Healthcare dominates emissions from services primarily because it is a large economic sector. Nationally, healthcare makes up roughly 18% of the US economy; in Los Alamos County, healthcare emissions are about 11% of the average household's carbon footprint. Healthcare emissions include emissions from the construction and operation of hospitals, doctor's offices, and other medical facilities; manufacturing of pharmaceuticals and medical equipment; and more.

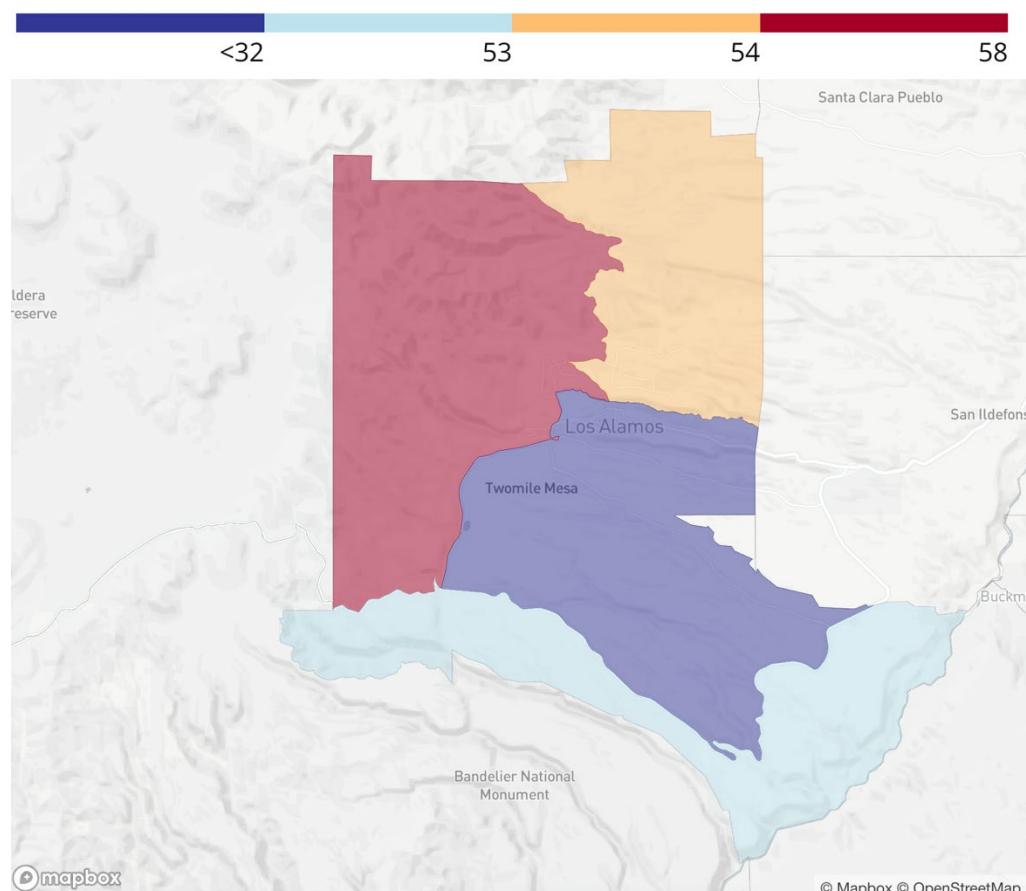
Other major categories of emissions include entertainment services (mostly fees & admissions to museums, concerts, etc.), education, financial services like insurance & pensions, and miscellaneous services (including personal care, household operations, etc.). These are generally smaller categories because average households spend much less on these other services. However, households with an adult who has a college degree tend to spend more on entertainment services, financial services, personal care products & services, and education. Los Alamos

County is a very highly educated community, and a very high income community, resulting in higher emissions per household from services than the US average.

Neighborhood Variation

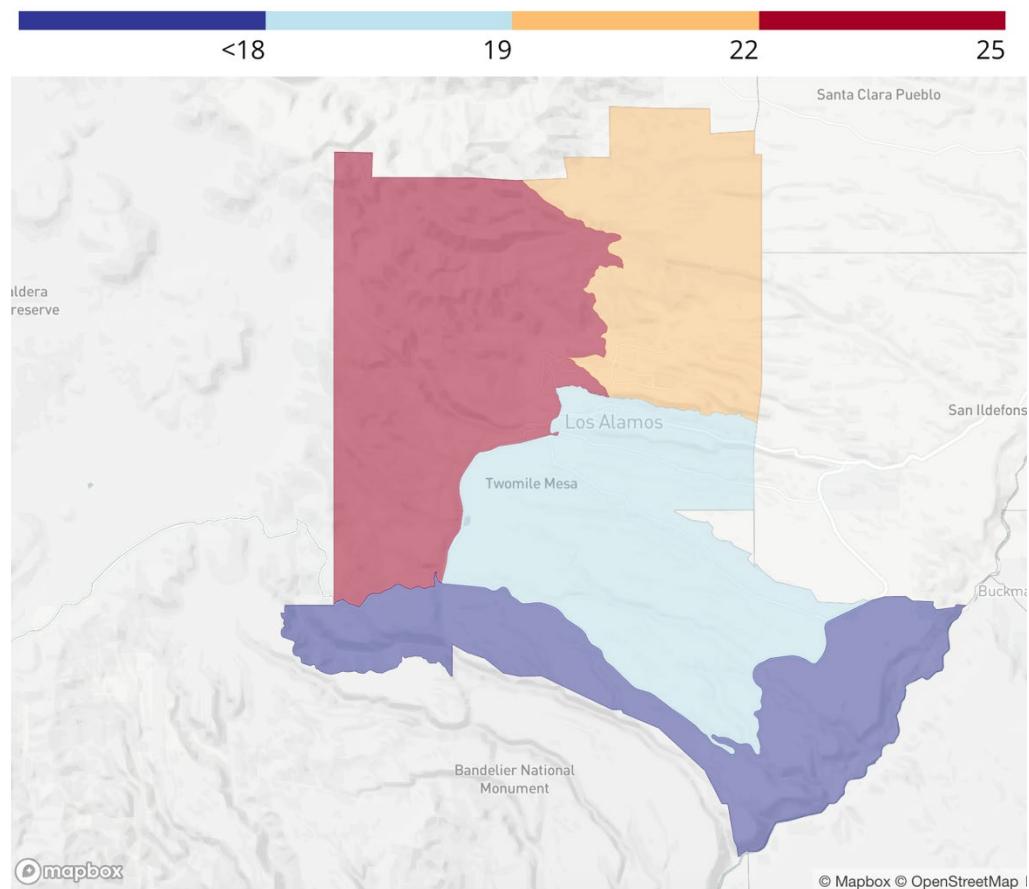
Among the 4 neighborhoods (census tracts) within the county, there is substantial variation in both emissions and the key driving variables. The highest-emitting neighborhood has per-household emissions of 58 MTCO₂e, while households in the lowest-emitting neighborhood have emissions of 32 MTCO₂e - roughly a 1.8-fold difference, as shown in Figure 4.

Figure 4. Consumption-based emissions map (MTCO₂e per household)



On a per-capita basis, these differences are reduced. Los Alamos County's highest per-capita neighborhoods have emissions of 25 MTCO₂e, while households in the lowest-emitting neighborhood have emissions of 18 MTCO₂e - roughly a 1-fold difference, as shown in Figure 5.

Figure 5. Consumption-based emissions map (MTCO₂e per person)



The variation in emissions between neighborhoods is driven by a wide range of factors.

The following maps show how the six core household characteristics:

- income,
- household size,
- vehicle ownership,
- home size (number of rooms),
- home ownership, and
- education

vary across the county, with subsequent implications for consumption-based emissions.

Figure 6. Los Alamos County Average Household Income Map

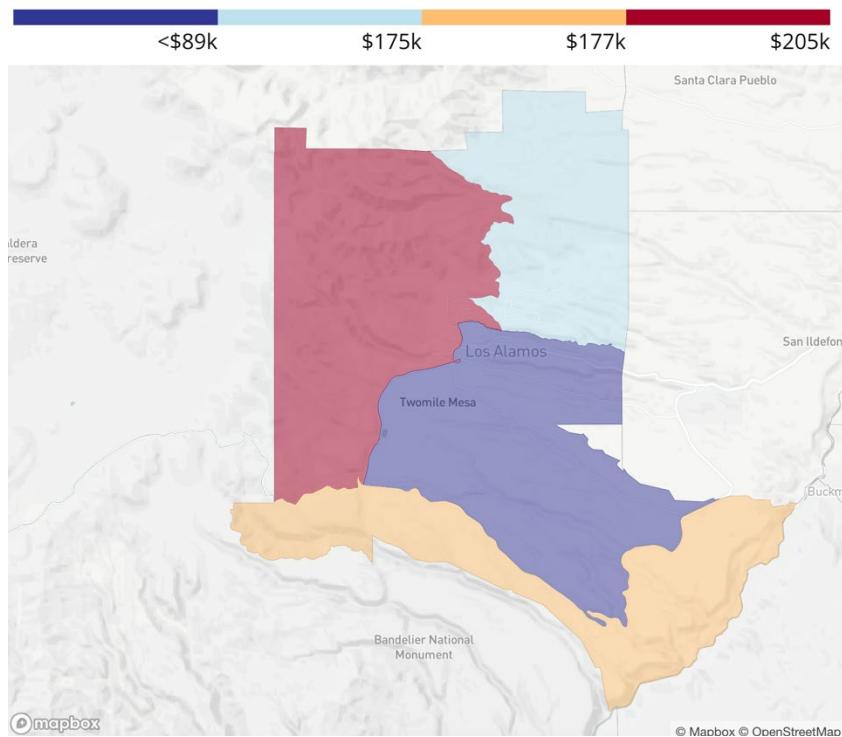


Figure 7. Los Alamos County Household Size Map

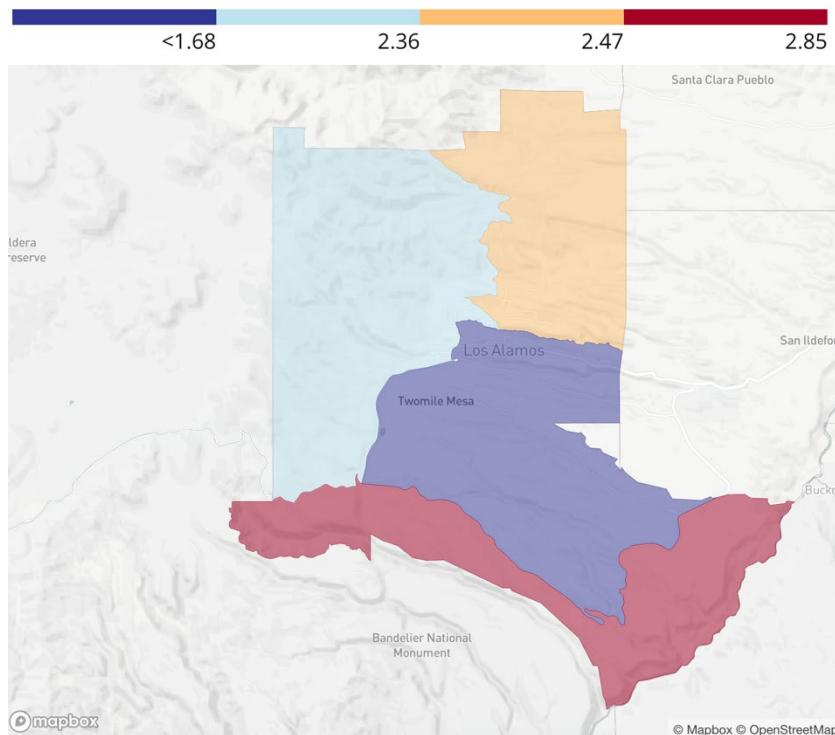


Figure 8. Los Alamos County Vehicle Ownership Map

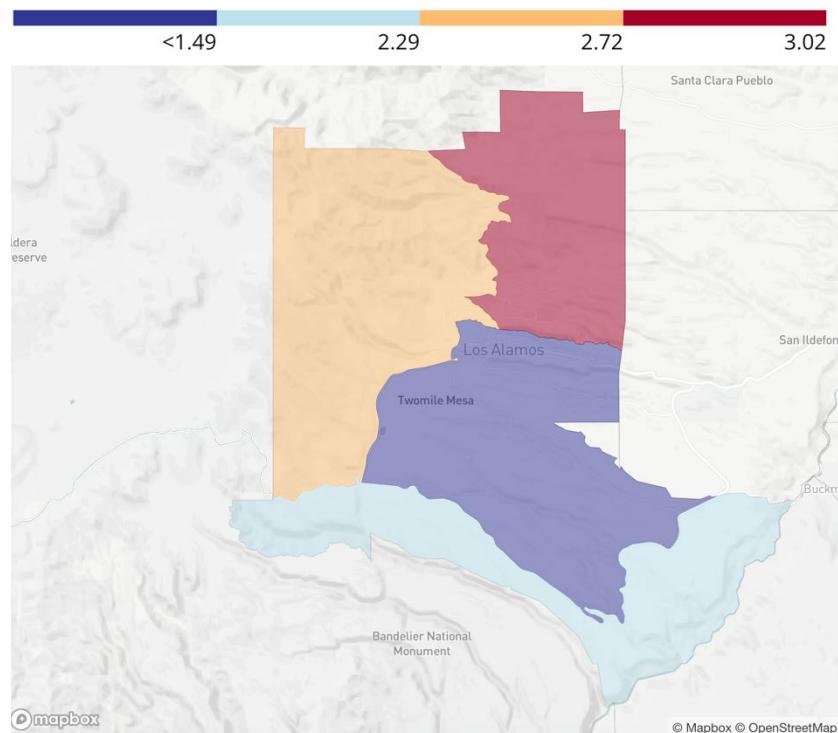


Figure 9. Los Alamos County Rooms per Household Map

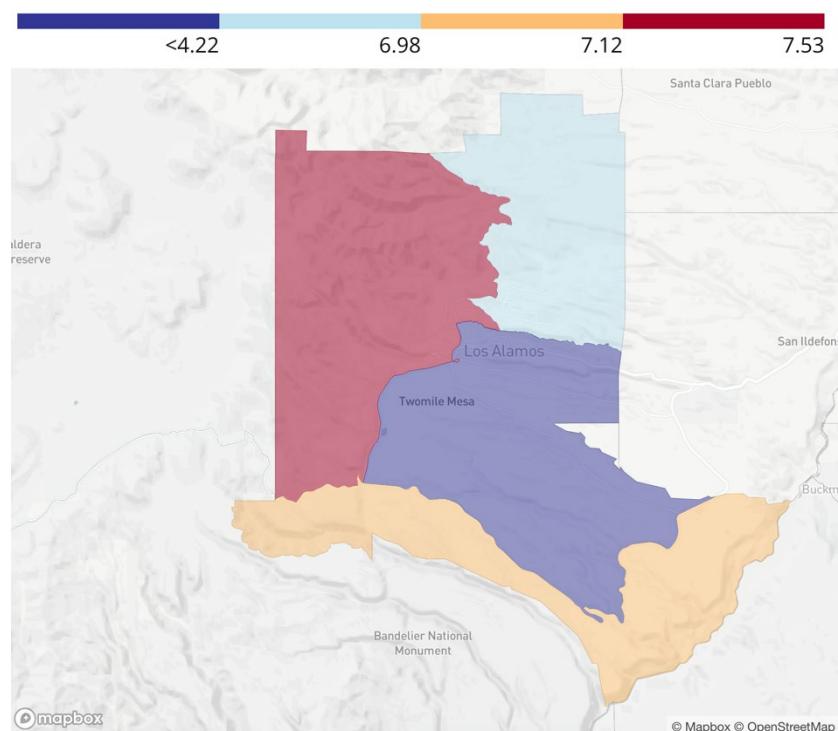


Figure 10. Los Alamos County Home Ownership Map

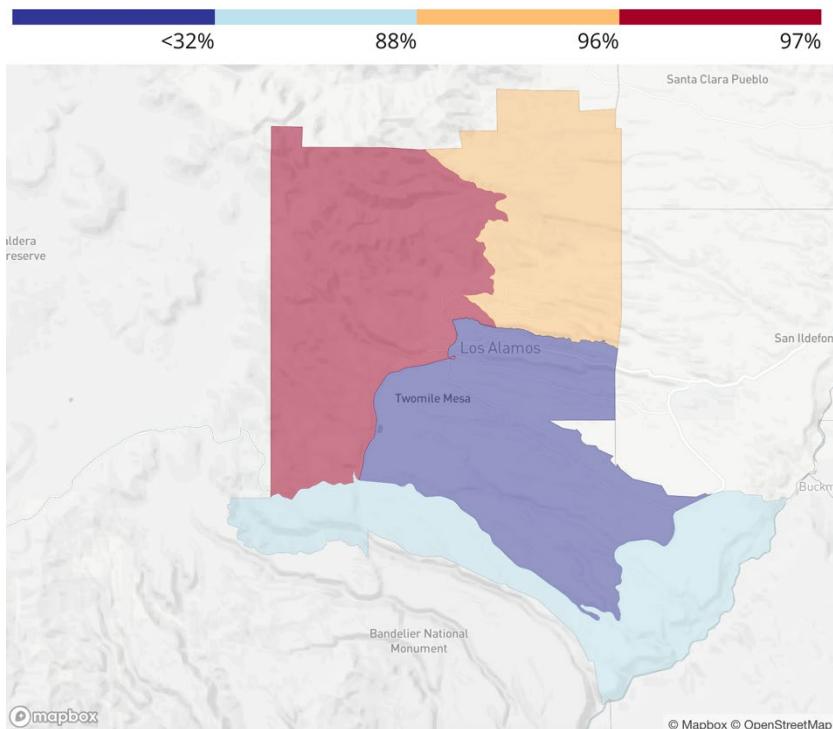
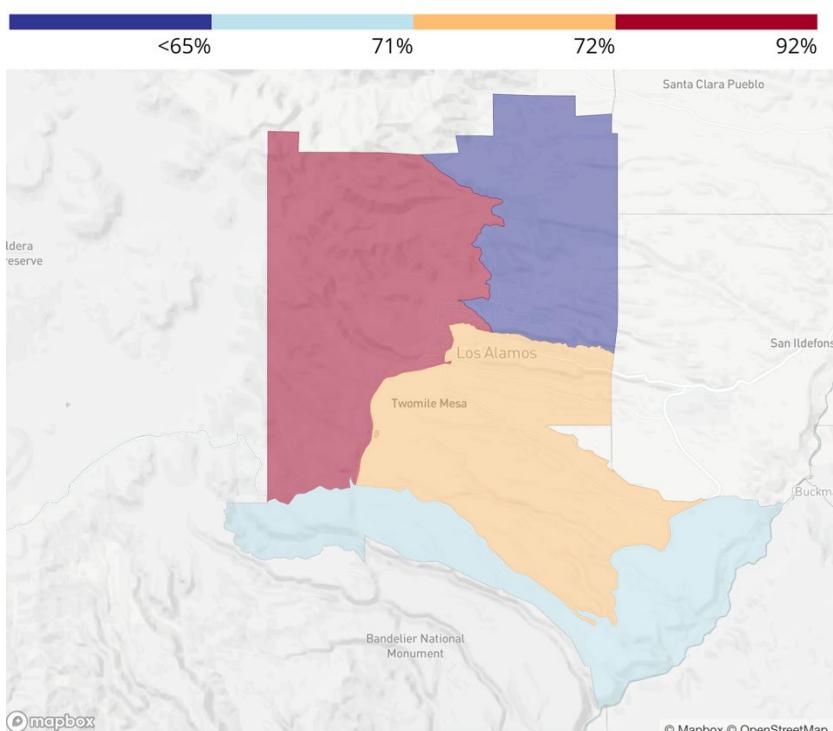


Figure 11. Los Alamos County College Degree Attainment Map



The following charts provide some examples of how these neighborhood characteristics correlate with per household emissions across the county.

Figure 12 shows census tracts in the county by average household income (horizontal axis) versus household carbon footprint (vertical axis). Each dot represents a census tract (neighborhood). Higher incomes strongly correspond to greater consumption emissions.

Figure 12. Household income vs. emissions

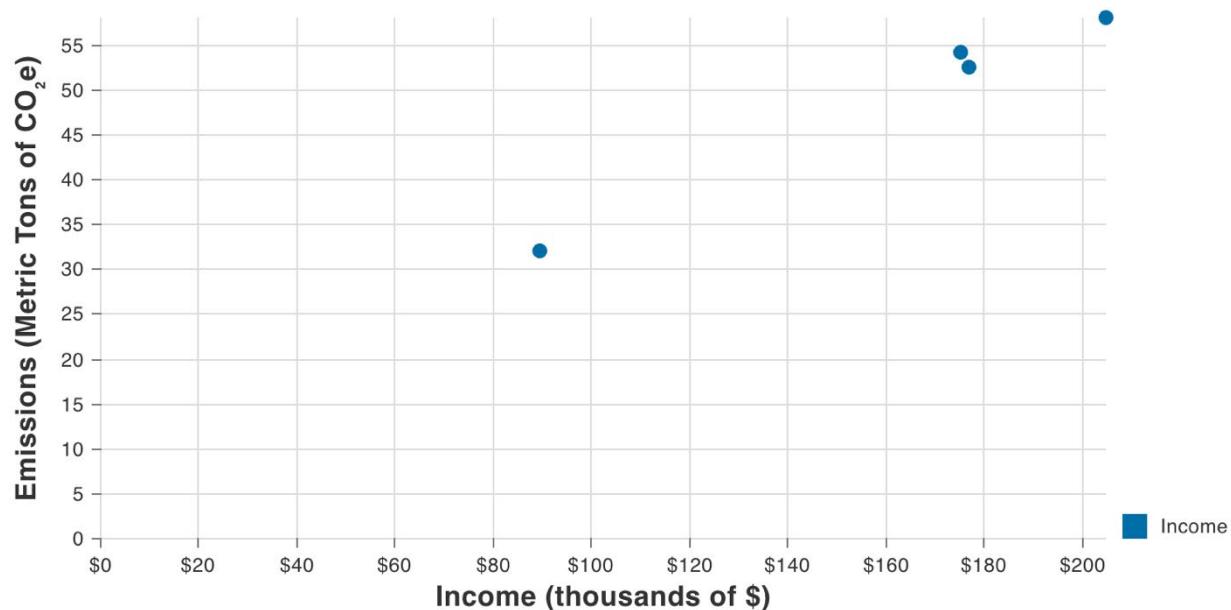


Figure 13 shows census tracts in the county by number of vehicles owned (horizontal axis) versus household carbon footprint (vertical axis). Each dot represents a census tract (neighborhood). Greater vehicle ownership strongly corresponds to greater emissions, almost entirely due to the increased driving associated with the extra vehicle(s).

Figure 13. Vehicle ownership vs emissions

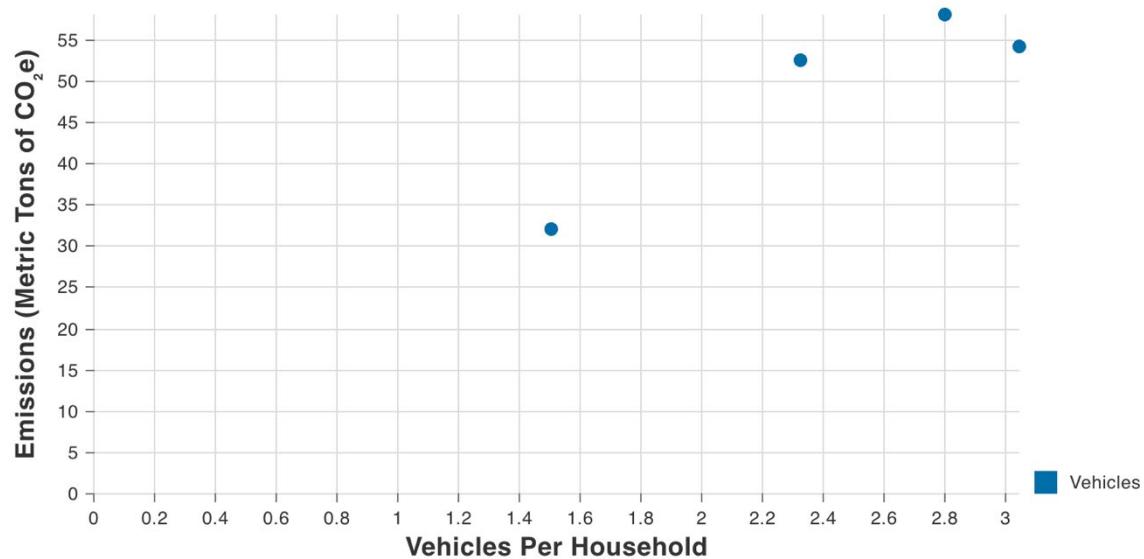


Figure 14 shows census tracts in the county by number of rooms per home (horizontal axis) versus household carbon footprint (vertical axis). Each dot represents a census tract (neighborhood). More rooms per home strongly corresponds to greater emissions - homes with more rooms take more energy and associated emissions to heat or cool and have more space to accommodate more purchases of furniture and other household goods.

Figure 14. Rooms vs emissions

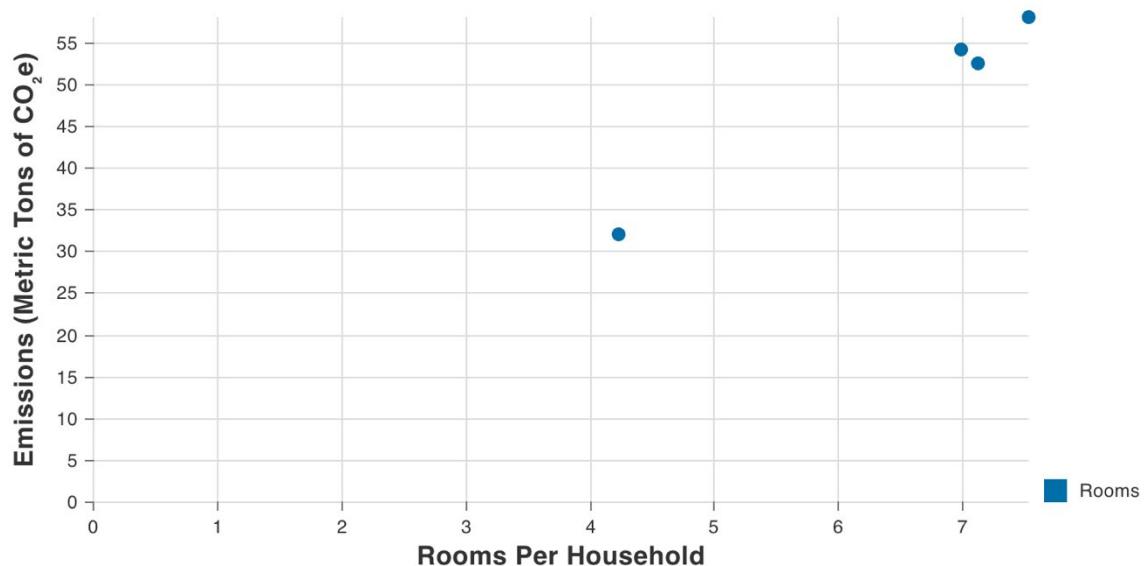
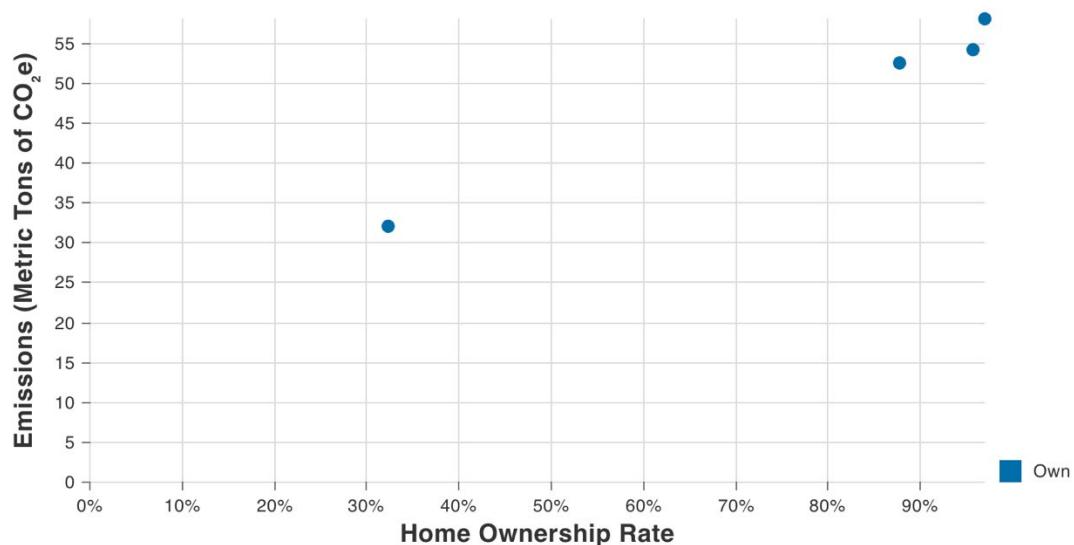


Figure 15 shows census tracts in the county by percent of households which own their home (horizontal axis) versus household carbon footprint (vertical axis). Each dot represents a census tract (neighborhood). Greater home ownership strongly corresponds to greater emissions. This is partly because home ownership correlates with income and household size. It is also because home ownership on its own leads to more consumption of goods that are higher emissions. For instance, this may include furniture and miscellaneous housewares.

Figure 15. Home ownership vs. emissions



Historical Trends

Data for the consumption-based emissions inventory spans back to 2007. For this analysis, the full range of historical trends is used. Since 2007, per household MTCO₂e emissions have changed by -11.6%, or -5.7 MTCO₂e per household, as shown in the chart and table below.

Figure 16. Historical CBEI trends

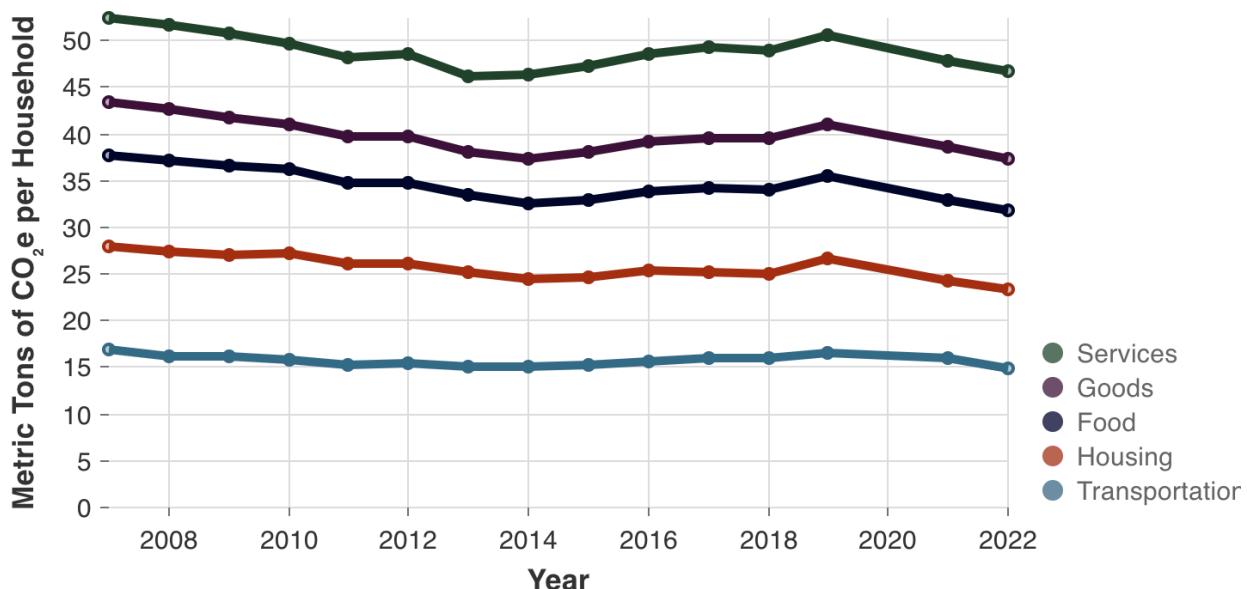


Table 3 compares emissions in 2007 and in 2022 on a per household basis (unless otherwise stated). Services has seen slight increases, about 4.1%, while Housing and Transportation have seen the greatest declines, of -22.3% and -12.4%.

Table 3. Los Alamos County Changes in Emissions Over Time (2007-2022)

Emissions Category	Los Alamos County (2007)	Los Alamos County (2022)	% Change
Total Emissions	52.4	46.7	-10.9%
Transportation Emissions	17	14.9	-12.4%
Housing Emissions	10.9	8.5	-22.3%
Food Emissions	9.8	8.5	-13.1%
Goods Emissions	5.7	5.4	-4.3%
Services Emissions	9.1	9.4	4.1%
Total Per Capita Emissions	22.3	19.7	-11.6%

At a national level, the carbon intensity of goods and services has been declining. The electricity grid has been getting cleaner, vehicle fuel economy has been improving, and industries have generally been figuring out how to produce more

with less emissions. In Los Alamos County, emissions from electricity have fallen primarily due to a cleaner electricity grid, as electricity use has remained largely constant. Meanwhile, food emissions have also declined, though this is predominantly due to national improvements in farming efficiency and reduced emissions per dollar of produce. Transportation emissions have declined recently, after almost returning to 2007 levels in 2019 as vehicle ownership rose.

Los Alamos has seen few changes in household characteristics over this time period. Since 2007, household incomes have increased by over \$36,000, or 31%. However, after adjusting for inflation, this is a decrease of -8%. The share of households with a college degree has grown substantially, from 63% to 74%, and vehicle ownership initially fell to less than 2 vehicles per household in 2014, but has since grown back to 2.14 vehicles per household, even as people per household is largely flat at around 2.37 people per household. In addition, the average home size in Los Alamos County has increased by about 5%, growing from 6.53 rooms per household to nearly 6.83.

Figure 17. Income over time

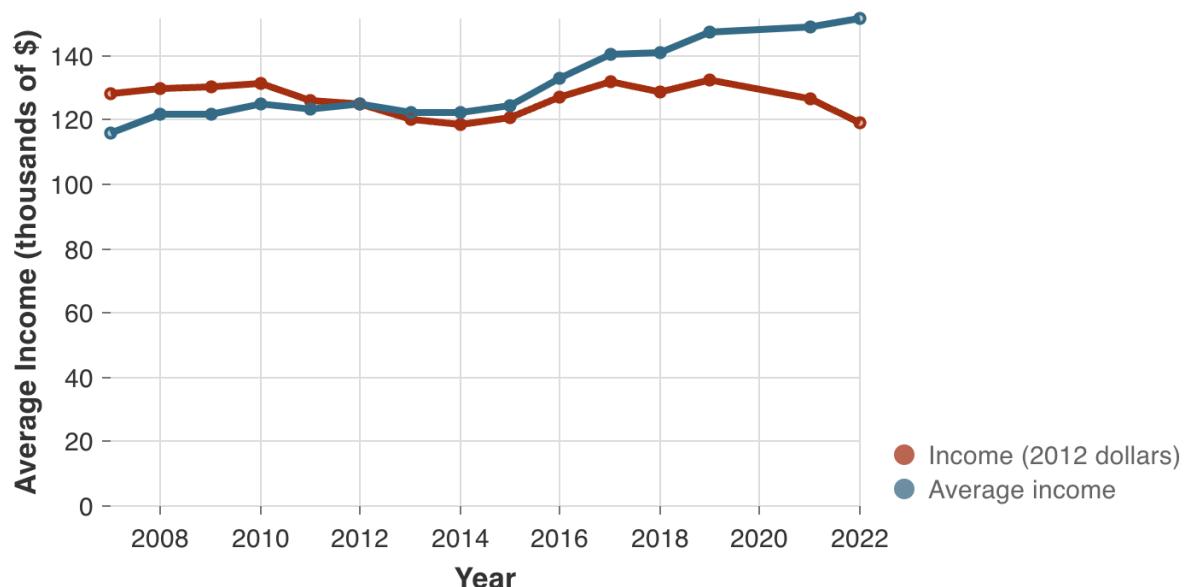


Figure 18. Percent with college degree and homeownership rate trends

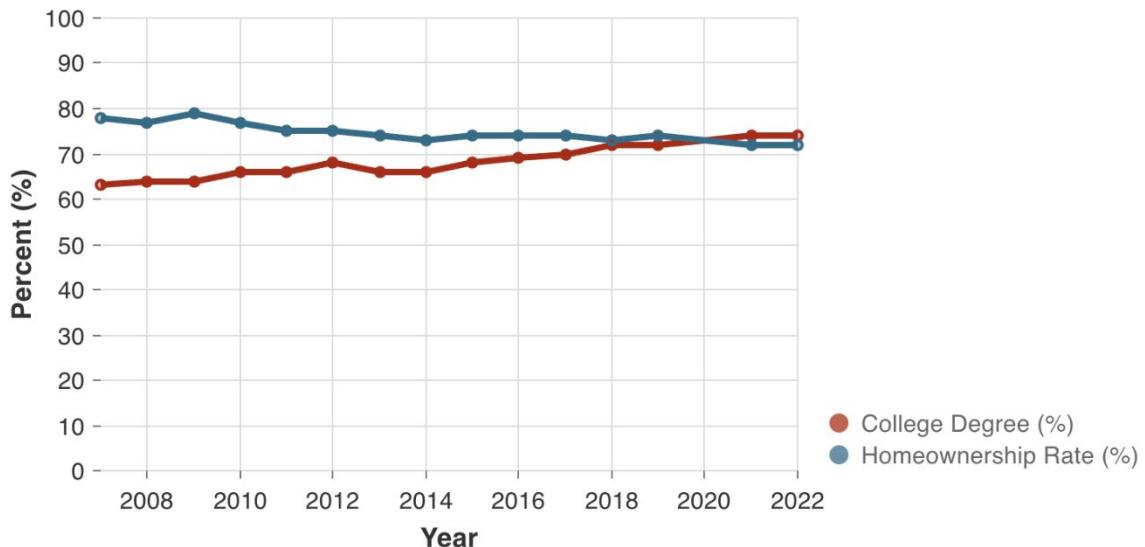
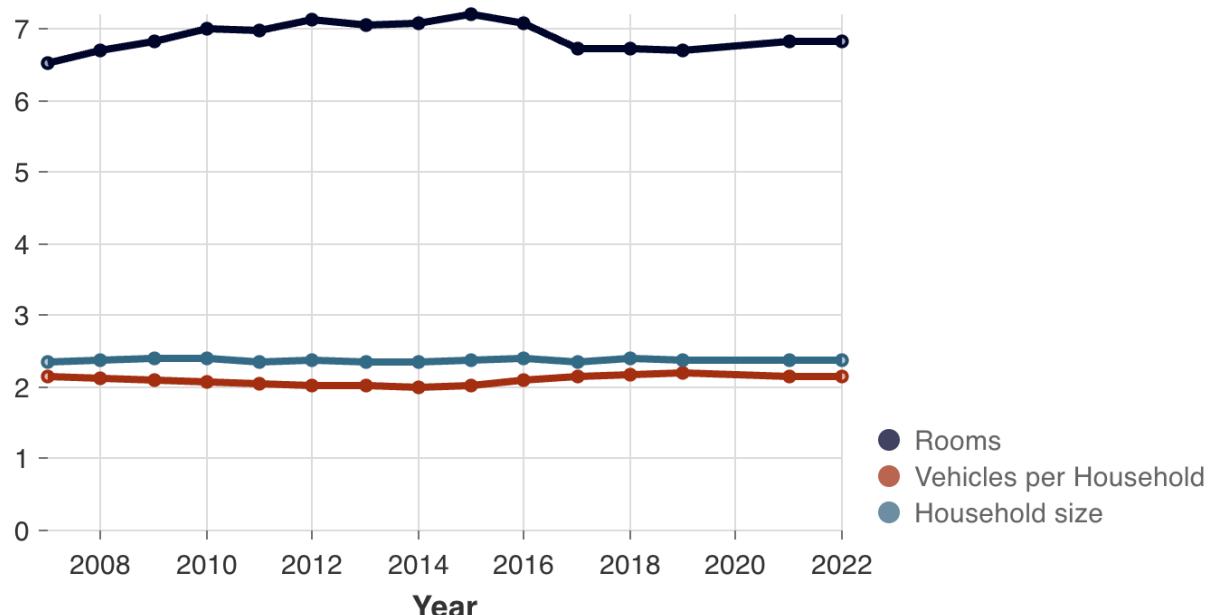


Figure 19. Rooms, vehicles per household, and household size trends over time



Forecasts and Policies

Three CBEI forecast scenarios, including two with progressively more aggressive emission reduction policies, were run to estimate average Los Alamos County household emissions through 2050.

The business-as-usual (BAU) scenario was intended to reflect projections with no local impacts from policies. No further housing development was assumed beyond currently approved projects through 2025. Vehicle fuel economy, household energy use and emission factors, and other characteristics were assumed to remain constant. The average emissions intensity of food, goods, and services (predominantly produced outside of Los Alamos) were assumed to decline by 1% per year.

The adjusted business-as-usual (ABAU) scenario reflected existing state and local policies and trends. This included growing uptake of electric vehicles, rising to 82.25% of all vehicle miles traveled (VMT) by 2050, reflecting state trends; limited home electrification (about 10%); a decline in electricity emissions intensity to 0 by 2040; and continued housing construction to meet local needs beyond 2025. The ABAU scenario also included changes associated with growing housing development and shrinking average household size, though income, educational attainment, vehicle ownership, and room size were assumed to remain constant.

Lastly, the CBEI actions scenario reflected significant implementation of both local and CBEI-related policies. This included significant expansion of home electrification and energy efficiency programs, with 62% of homes electrified and additional home energy retrofits for energy efficiency in remaining homes; increased uptake of electric vehicles, rising to 87.25% of all VMT by 2050; and additional CBEI-focused actions that include a 50% reduction in post-consumer food waste (10% reduction in all food consumption); and 20% reductions in consumption of meat and dairy, furnishings and apparel, and healthcare from changing diets, shopping patterns, and health. The CBEI actions scenario also reflected full implementation of the Bicycle Transportation Plan, shifting travel modes away from automobiles; and transit-oriented development leading to a greater fraction of households owning fewer vehicles and choosing to travel by bus.

At present, no clear pathway exists to achieve full decarbonization of sectors such as aviation, food, construction, and imported goods and services. However, by working to fully implement sector-based actions to decarbonize existing buildings, expand EV uptake, and make progress addressing emissions in other areas to the extent feasible, Los Alamos County could expect to see up to a 17% reduction in consumption-based emissions by 2030, and a 54% reduction in consumption-based emissions overall through 2050, relative to a 2022 baseline (28% and 60% relative to a 2007 baseline, respectively). This is a significant decline that does not account for the likelihood of further reductions (beyond the assumed 1% per year) in other communities and countries that provide goods and services to Los Alamos.

The results from this modeling are shown in Figure 20 and Table 4.

Figure 20. Los Alamos CBEI Projections

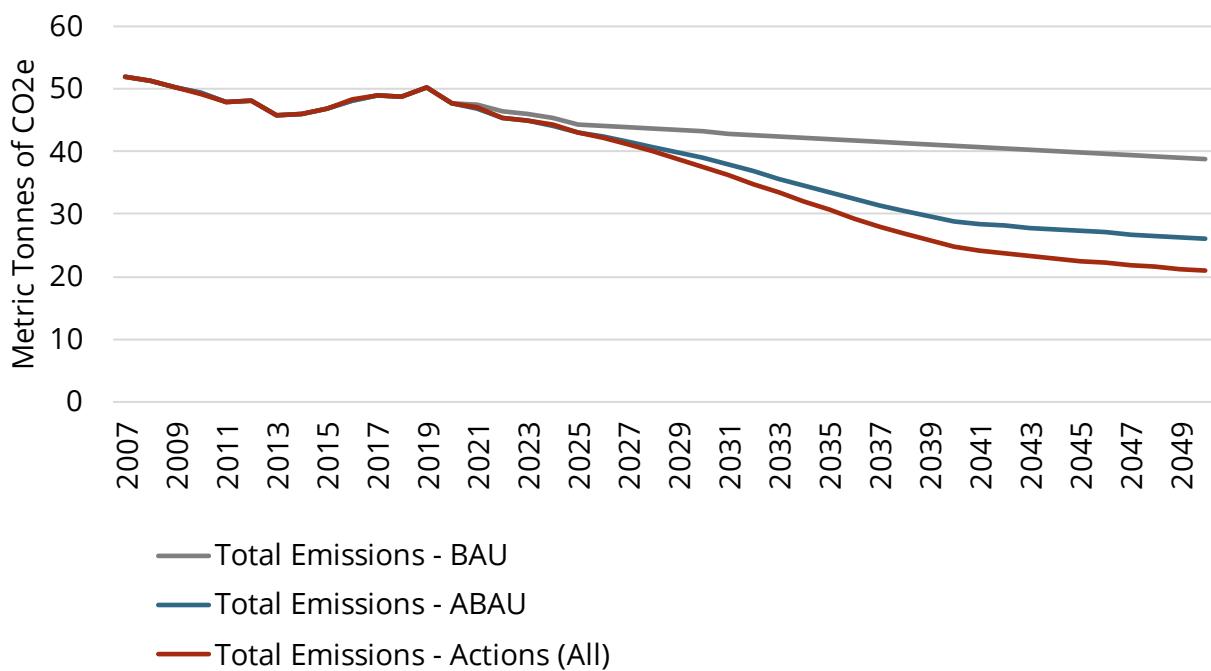


Table 4. Impact of Policies on CBEI Emissions 2022-2050

BAU	ABAU	Actions
Economy-wide Decarbonization -7.6 MTCO ₂ e	Vehicle Electrification (82.25%) -9.4 MTCO ₂ e	Vehicle Electrification (87.75%) & VMT Reductions (-4% VMT) -0.6 MTCO ₂ e
	Building Electrification (10%) -0.4 MTCO ₂ e	Building Electrification (62%) & Energy Efficiency (17.16%) -2.6 MTCO ₂ e
	Electricity Decarbonization (100%) -1.8 MTCO ₂ e	Meat & Dairy Reduction (20%) -0.4 MTCO ₂ e
		Food Waste Prevention (10%) -0.5 MTCO ₂ e
		Furnishings & Apparel Reduction (20%) -0.5 MTCO ₂ e
		Healthy Living: Healthcare Reduction (20%) -0.8 MTCO ₂ e
Total: -7.6 MTCO₂e (-16%)	Total: -11.6 MTCO₂e (-42%)	Total: -5.2 MTCO₂e (-54%)

As shown, the largest sources of emission reductions are overwhelmingly vehicle electrification and VMT reductions (up to 10 MTCO₂e), building electrification and energy efficiency (up to 3 MTCO₂e), and electricity decarbonization (at least 1.8 MTCO₂e, but significantly more if accounting for electricity used by electric vehicles and electrified buildings). It is critical that Los Alamos prioritize these sector-based

emission reduction strategies, and consider additional consumption-related actions as capacity and resources permit.

These modeled effects of consumption-related actions are high-level estimates of what may be feasible with a suite of activities taken by the County to address these emissions. Some potential actions to consider include:

Meat & Dairy Reductions:

- Shift municipal, school procurements to center plant-based foods
- Encourage plant-based foods at restaurants & businesses
- Partner with community groups and farmers markets to promote local options

Food Waste Preventions:

- Educate and raise awareness about food waste
- Expand composting services

Healthy Living:

- Promote active transportation, such as walking and biking.
- Reduce air pollution through expanding electric vehicles and all-electric buildings
- Encourage plant-based diets with fewer processed foods

Apparel & Furnishings Reductions:

- Support local reuse & repair programs
- Promote secondhand stores and “buy nothing” groups
- Expand and promote “Library of Things” library services

Because few cities have implemented meaningful CBEI-related policies, and because many of these actions rely on broader changes that are not within the direct regulatory authority of the County, there is significant uncertainty about the actual impact of the suggested policies and the level of effort required to achieve the assumed impacts. As a result, CBEI-related actions should be prioritized based on feasibility and ease of implementation, rather than estimated emission reduction potential.

Summary

In 2022, the typical Los Alamos County household was responsible for roughly 47 MTCO₂e, or about 20 MTCO₂e per person. In comparison, the US average is about 43 MTCO₂e per household. With 7,999 households in the county, this is a total of roughly 374,000 MTCO₂e in 2022 attributable to residents of Los Alamos County. This is nearly three times higher than the 2022 community-wide GHG inventory of 135,997 MTCO₂e.

Los Alamos' household consumption-based emissions are driven primarily by higher household income, greater vehicle ownership, and higher educational attainment than the US average. The largest sub-categories of consumption-based emissions are gasoline (11.1 MTCO₂e), healthcare (5.2 MTCO₂e), natural gas (4.5 MTCO₂e), and household furnishings & appliances (2.3 MTCO₂e). Meat and dairy combined also make up 2.8 MTCO₂e, substantially more than electricity (1.8 MTCO₂e) or air travel (1.7 MTCO₂e).

Los Alamos can potentially see up to a 54% decline in consumption-based emissions by ensuring that critical sector-based actions in vehicle and building electrification, and electricity decarbonization, move forward, while also supporting a range of consumption-based actions to support healthy eating and lifestyles, reusing and repairing old clothing and appliances, and reducing food waste.

Appendix A: Methodology

General Overview

The consumption-based emissions inventory (CBEI) is not a direct measurement of individual households' consumption or behavior. Instead, a model (a series of complex calculations) is used to estimate consumption of goods and services and associated emissions. This approach uses a combination of real-world consumption or emissions data where available along with predictions based upon demographic, regional, and national averages.

Preparing a complete CBEI involves multiple sub-models, but each sub-model follows the same general formula, described below.

1) Select a survey

First, a nationwide survey , conducted by the US federal government, that focuses on an important element of the inventory is selected. The US sub-models are built using the Consumer Expenditures Survey (CEX), the National Household Travel Survey (NHTS), and the Residential Energy Consumption Survey (RECS).

These surveys are used to build the full suite of models for the CBEI. CEX provides data used to model all sub-categories of consumption except for gasoline and home energy use. NHTS provides data for the vehicle miles traveled model, which translates into gasoline usage. RECS provides data for the home energy use models including electricity, natural gas, and other heating fuels.

2) Identify key household characteristics

Next, household characteristics are identified which are both included in the survey and for which nationwide data from the US census and other data sources are available. These data include variables like household size, income, vehicle ownership, etc. Geography, climate, and other relevant data are also included where applicable.

3) Build a predictive model

With the nationwide survey and selected household and geographic characteristics, a computer program is run to identify how strongly each of

those household characteristics correlate with the survey results. This technique is called multiple linear regression, and is a type of machine learning. The computer sees many input data (the household and geographic characteristics) and learns how to predict what the outcome will be (the survey result). The computer then provides an equation that takes each of those household and geographic characteristics and produces an estimated result.

A single linear regression might take this form:

$$y = mx + b$$

where y is the survey result (dependent variable), x is the household and geographic characteristics (independent variable), m is the computer's predicted correlation between x and y (slope), and b is a fixed value that adjusts for any underlying base discrepancy between x and y when x is equal to 0 (intercept).

In multiple linear regression, the equation takes on a more complex form:

$$y = m_1x_1 + m_2x_2 + m_3x_3 + \dots + b$$

where in this case, each x (x_1, x_2, x_3 , etc.) is a different household or geographic characteristic, with its own unique correlation (m_1, m_2, m_3 , etc.) that together add up to make the overall result. The number of x variables depends on the sub-model and available data. Almost all sub-models use at least six variables ($\dots x_6$), with some using a dozen or more to get the most accurate prediction possible.

In addition, many of the values considered do not scale linearly. Instead, the models often look more like this:

$$\ln(y) = m_1x_1 + m_2*\ln(x_2) + m_3x_3 + \dots + b$$

where the survey result might actually be scaled as a natural log (\ln) variable,

and some of the household and geographic characteristics are also calculated using its natural log (or sometimes both its ordinary and natural log values). This generally occurs in cases where there are nonlinear effects from household characteristics, and smaller values have different implications than larger values. For example, a household of two is typically two adults, whereas a household of three typically includes a child, which can significantly change consumption patterns. Similarly, consumption patterns based on income change significantly once basic needs are met and "luxury goods" start being consumed.

4) Run the model using local data

After these multivariate logistic regression models are built (see above), local data is then collected to be used in the model. These data consist mostly of census and climate data, from federal sources including the US Census Bureau, the National Oceanic and Atmospheric Administration (NOAA), but also include things like energy prices, inflation rates, fuel economy, and emission factors from sources including the Energy Information Agency (EIA), the Bureau of Labor Statistics (BLS), the Department of Energy (DOE), and the Environmental Protection Agency (EPA). Those values are transformed to fit the required inputs to the model, and then the model is run with that local data as the independent (x) variables in the model.

In some census tracts, local data is a poor fit for the models. Because the models are trained on a limited set of survey data, local outlier values can produce unreasonable results.

For instance, universities can result in unrealistic estimates of things like household size. These significant outliers are corrected to be more realistic estimates of local conditions for typical households in these instances. Extremely wealthy communities where the average household incomes well in excess of \$300,000/yr) are also an outlier and are adjusted downwards. Much of the luxury spending at these higher income levels is very low-emission due to spending money on intangibles like brand value. For example, luxury clothing and cars have similar emissions as non-luxury goods, but cost significantly more due to the brand, and so adjusting highest-income households downwards preserves the accuracy of the emissions estimates.

5) Calculate emissions

After calculating consumption using the models, emissions are calculated. Most consumption emissions are calculated using the US EPA's US Environmentally Extended Input-Output Model (USEEIO), which bridges the gap between consumption (dollars) and emissions (MTCO₂e). This model includes data on emissions by sector and supply chain stage, allowing for differentiation between emissions associated with production, transport, wholesale, and retail, for all US emissions; emissions associated with fixed capital investments (e.g. buildings & infrastructure construction, excluding residential construction) are also incorporated across all sectors.

At the time this inventory was prepared, USEEIO v2.0 was the best available model. However, future inventory updates should seek to use USEEIO State Models for emission factors and consumption breakdowns between New Mexico and the rest of the US.

Electricity emissions are calculated using EPA's Emissions and Generation Resource Integrated Database (eGrid) emission factors, detailed at the zip code level and then scaled to any geography. For all other direct consumption of fuels (natural gas / methane, gasoline, etc.), the latest Intergovernmental Panel on Climate Change (IPCC) estimates of global warming potential (GWP) and best available academic literature are used to estimate life-cycle emissions. (IPCC GWP values are commonly used across the majority of emissions reporting protocols, such as the Global Protocol for Community-Scale GHG Inventories and the Local Government Operations Protocol). This includes fugitive emissions (e.g. undesired leaks of greenhouse gases) and non-CO₂ GHG emissions, as well as any additional climate forcing effects from other emissions (such as particulate matter or contrails).

When working with local jurisdictions, these national or grid average emission factors are replaced with the best available local data. For Los Alamos County, this includes electricity usage. Water and natural gas usage are also calculated using local real-world data from LADPU.

6) Make final adjustments to consumption estimates

While the multiple linear regression model help to estimate consumption, the model does not perfectly resemble reality. These discrepancies are adjusted by comparing the model's predicted results with real-world data wherever available, and scaling the model outputs accordingly where real-

world data isn't available.

To achieve this, the model results are compared with the actual results for the most granular level of data available. This can be national-level data (in the case of surveys), state-level data (in the case of transportation), or locality-level data (in the case of energy or water consumption). For cases where real-world data is available at the geographic scale of interest, the real-world data is used instead; otherwise, the model is run at the same geographic level at which data is available and use that to create a scaling factor, which is used to correct the locally modeled data. For example, modeled state-level energy use is compared with real state-level energy data, and then used to generate a scaling factor to adjust each census tract's modeled energy use. This scaling correction is usually on the order of 10%.

Model Input Variables

The consumption models use the following six variables: household size, average income, vehicle ownership, home ownership, share of household respondents with a bachelor's degree or higher (educational attainment), and number of rooms (home size).

The vehicle miles traveled model uses household size, average income, vehicle ownership, home ownership, and educational attainment, along with commute time to work, drive alone to work, number of homes per square mile, number of employed people per square mile, employed people per household, family status, children per household, youth per household, adults per household, and Census region.

The home energy models use household size, average income, home ownership, and home size as well as detached home status, heating and cooling degree days, statewide average price of electricity, statewide average price of natural gas, and census division.

Technical Details

The Consumer Expenditures Survey (CEX) is the only annual national survey of household consumption in the United States. Within the CEX, there are a total of 95 categories and subcategories of expenditures for everything US households consume, including detailed breakdowns of food, utilities, home construction, transportation, household goods and services.

The CEX is used as the initial basis for our consumption models across all categories of expenditures. Because the smaller sub-categories have more uncertainty and error associated with them, EcoDataLab's models are generally developed at either first- or second-tier category level across the CEX dataset. After running the models at the local level, local consumption estimates are normalized to national data by using a scaling factor based upon the ratio of national modeled results to real-world national survey results, across each category of consumption.

CEX categories are then mapped to Personal Consumption Expenditures (PCE) developed by the Bureau of Economic Analysis (BEA). Each PCE maps to one or more sectors of the US economy, and each sector has associated full supply chain emissions available through the US EPA's USEEIO model. BEA's PCE Bridge Tables for 2012 allow for assigning emissions to cradle-to-gate, transportation to market, and trade stages. Custom emission factors (grams CO₂e per dollar of expenditure) are then created based on the detailed mapping of sectors, PCE and CEX categories. This converts average US household expenditures to total US emissions, broken down by each CEX category and in total.

These custom emission factors are then increased to account for embodied emissions in fixed capital investments (buildings and infrastructure). Emissions from fixed capital are attributed to each sector based upon that sector's economic weight. This results in a new, final emission factor (grams CO₂e per dollar of CE expenditure) that accounts for all lifecycle emissions associated with that category of expenditure.

However, these lifecycle emission factors based upon USEEIO data are only available for the year 2012. To calculate emissions in other years, they are adjusted backwards and forwards in time as needed using an average decarbonization rate (assumed 1% based on academic literature). Prior to calculating emissions, all modeled and real-world household expenditures are also normalized to 2012 US dollars using the category-specific Consumer Price Index (CPI) for each category.

While the CBEI models started with the CEX, greater accuracy in calculating emissions can be achieved by using other household surveys for specific sub-categories: namely, by using the National Household Travel Survey (NHTS) to model household vehicle miles traveled (VMT), and by using the Residential Energy Consumption Survey (RECS) to model household energy usage. These models are the most robust models that could be constructed using recent and relevant data, and in many cases are a very strong fit. For instance, at the state level, EcoDataLab's electricity and natural gas models have a goodness of fit R² value of about 0.87 and

0.72, meaning they explain about 87% and 72% of the variation in household energy use, for their respective categories of energy. When comparing with specific city and county-level data, these modeled results are typically within ~10% of the real-world data, providing sufficient accuracy for historical back-casting and local tract-level estimates of variation.

In preparing consumption-based emissions inventories, CEX-based modeled estimates of expenditures on gasoline, electricity, natural gas, and other fuels are replaced with results from these other sub-models. With these models, direct and indirect (well-to-pump) emission factors are applied for both fossil fuels and electricity consumed directly by households.

Gasoline emissions are based on US national average vehicle fuel economy data from the Department of Transportation. Electricity emission factors are based on US EPA eGrid region emission factors at the zip code level, and scaled to other geographies based on population, unless local emission factors are available.

Because of the combination of local characteristics to inform regression modeling and scaling based on real-world national data to capture general trends, this methodology allows for consistently tracking changes in the quantity of household consumption over time, and to estimate the impact of consumption on emissions using best-available sources.

As reported in the Consumption-Based Greenhouse Gas Emissions Inventory of San Francisco from 1990 to 2015¹⁵, this consumption-based approach accounts for essentially all GHG emissions in the US economy but allocated to households and government. Figure 7 in that report shows that the CBEI correlates very closely to the traditional inventory (within 10%). One limitation of this approach is that imports are assumed to be produced with the same carbon intensity as domestic production; future work will likely incorporate a multi-regional input output model (MRIO) (such as Eora or Exiobase3) to account for the carbon intensity of imports. MRIO models allow for more granular analysis of trade between geographic regions, including between US counties and with other countries.

Limitations

Unlike other CBEI approaches, this model approach allows for some ability to see the effect of policy and to track changes over time. The current approach offers this improved tracking by including more policy-relevant variables, including home size,

¹⁵ CoolClimate Network, <https://escholarship.org/uc/item/4k19r6z7>

household size, home ownership, education, income, population density, and vehicle ownership.

However, local changes in policy, behavior, infrastructure, and technology which might affect consumption or emissions in ways beyond the model variables are not included in the current approach. If a local policy changed consumption patterns or the carbon intensity of products or services consumed, we would not be able to monitor this with the current methodology. Additional data could supplement the approach in future studies.

The current approach does not include an estimate of total error. Ideally, each estimate of consumption and emissions would include uncertainty bounds and analysis of error. Potential sources of error include reporting error in household survey day, sampling error, model error, categorization error, and other errors typically associated with input-output models (in this case, the USEEIO). Most of these errors are known and could be propagated through formulas in the study in future research.

The carbon intensity of imported goods is also assumed to be the same as domestically-produced goods. The current model is unable to track the countries of origin of emissions associated with local consumption. This assumption may affect individual products, such as computers, but is unlikely to have a large impact overall since the United States has a large, fairly carbon-intensive production system, with considerable electricity production from coal, similar to many exporting countries. Future studies could incorporate a multi-regional input output model to provide better data on the effect of international supply chains on consumption-based emissions.

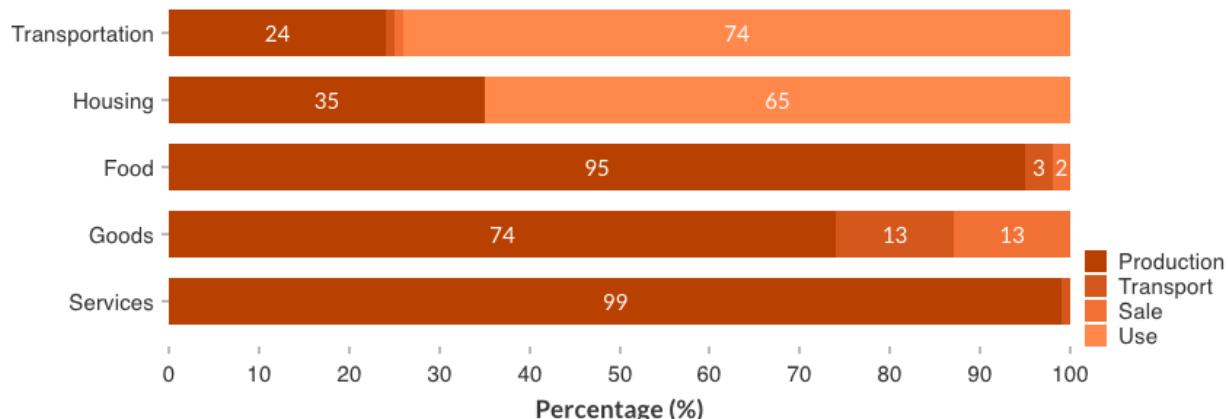
Lastly, it is also assumed that price corresponds with “value added” economic activity. If residents of an area purchase higher priced goods, then the methodology will linearly scale emissions up with prices. This scaling is appropriate if higher prices are the result of additional economic activity, such as importing products from abroad, but is problematic when prices are artificially raised, such as for branding purposes. Conversely, cheaper products will result in lower emissions in the model. Generally, it is assumed that price differences average out over thousands of households.

Appendix B: Emissions Breakdown by Supply Chain Stage

Los Alamos County's consumption-based emissions inventory assumes all categories and sub-categories (except electricity) have the same emissions intensity as the US average (or state average where available). This means that the CBEI assumes every dollar spent, mile driven, or unit of energy used for home heating by Los Alamos County residents has the same emissions as the average dollar, mile, or unit of energy spent in the US (or New Mexico).

The CBEI also assumes those emissions occur in the same places throughout the supply chain. Emissions are generated in production, during transport (by rail, sea, road, or air), in wholesale and retail, and use. In some cases, disposal also generates emissions; however, disposal also sometimes results in storing carbon that would otherwise be re-emitted, or avoiding emissions that would result from extraction and processing of raw materials. The chart below shows the share of emissions associated with production, transport, sale, and use for each overarching category of goods. Because disposal emissions are sometimes negative, such as from composting or recycling, they are not included on this chart.

Figure 21. Household emissions breakdown by supply chain stage - US average



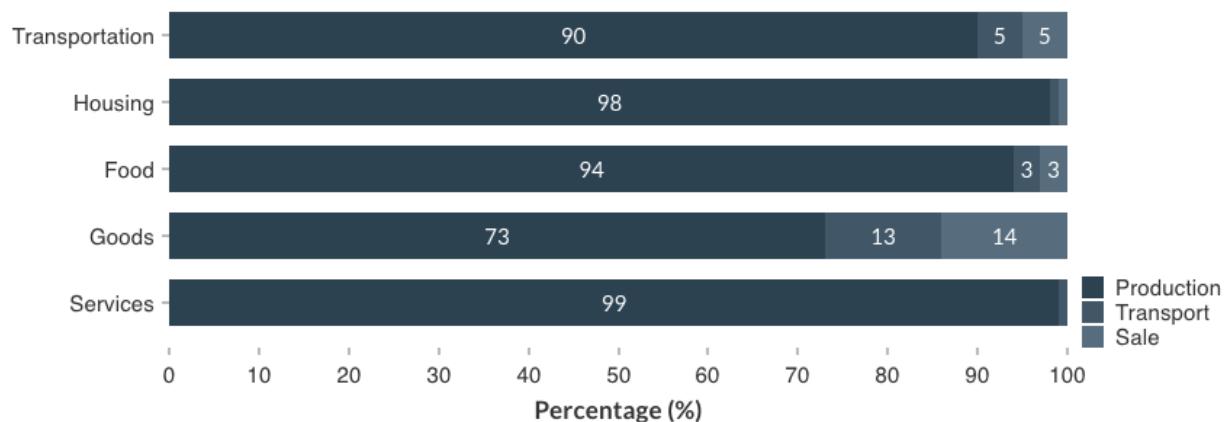
This chart shows, for each category of consumption, what percentage of emissions are associated with each life-cycle phase (production, transport, sale, and use).

Overall, household emissions from transportation and housing are dominated by "use phase" emissions - the burning of fossil fuels (such as gasoline or the methane in natural gas) for transportation or home heating energy. This "use phase," primarily gasoline combustion, makes up nearly 74% of household transportation

emissions. For housing emissions, "use phase" emissions (electricity and home heating fuels) make up 65%.

For food, goods, and services, use phase emissions are practically zero. These categories have some transport and sale emissions, but are overwhelmingly dominated by production emissions. The chart below shows the pre-consumer (production, transport, and sale) breakdown of emissions by category.

Figure 22. Pre-Consumer Emissions Breakdown - US Average



This chart shows, for each category of consumption, what percentage of emissions are associated with each life-cycle phase prior to use (production, transport, and sale). These are the emissions associated with the production of goods and services prior to households acquiring them.

Pre-consumer emissions associated with transportation (that is, prior to a consumer using a vehicle) are predominantly from production (90%). Roughly 50% of these emissions are associated with the production of fuel (oil extraction & refining). The remaining 50% of emissions are from the production of vehicles and vehicle parts. Most of the transport emissions in this section derive from the transport of used vehicles, while sales emissions mostly derive from the sale of gasoline and other transportation fuels.

For housing, over 99% of pre-consumer emissions occur in production. This is dominated by the production of natural gas and the construction of homes, apartments, and other lodging (including hotels). The small portion of these emissions attributable to transport and sale are entirely due to the transport and sale of fossil fuels (and wood) used for home heating.

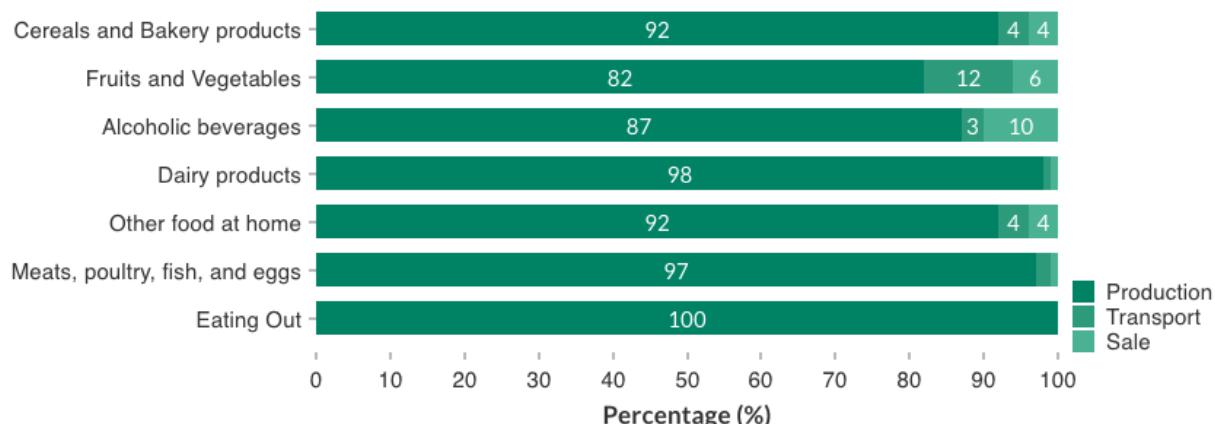
For food, roughly 95% of emissions occur in production. As discussed in the food breakdown below, food emissions primarily come from application of nitrogen fertilizers and enteric fermentation (methane released from digestion by cows and other livestock). These emissions significantly outweigh the emissions associated with transportation or sale of food.

For goods, only about 72% of emissions come from production. About 13% of emissions from goods comes from transportation, and 14% comes from retail. Transport emissions from goods disproportionately occur from truck travel, which make up over 90% of the total goods transport emissions (12% of goods total emissions). Similarly, over 90% of the emissions associated with the sale of goods comes from retail (13% of goods total emissions).

Like housing, pre-consumer emissions from services are overwhelmingly (99%+) from production. Services is primarily made up of activities like healthcare, education, entertainment, and various financial services; most of these involve little to no retail or transportation to provide these services.

Figure 21, below, shows what percentage of emissions are associated with production, transport, and sale for each sub-category of food.

Figure 23. Pre-Consumer Food Emissions Breakdown - US Average



For all food sub-categories, over 80% of emissions come from production. For fruits and vegetables, and alcoholic beverages, production emissions account for roughly 83% and 87% of pre-consumer emissions, respectively. Cereals and bakery products, as well as miscellaneous household food (spices, ingredients, etc.), have roughly 92% of their emissions from production. Meanwhile, meat and dairy products have over 97% of their emissions from production, while eating out has

99% of its emissions from production. Within all food sub-categories, transport emissions are overwhelmingly dominated by truck transport.

Meat and dairy products have significantly higher emissions (on both a per calorie or per dollar basis) than other foods. These extra emissions are virtually entirely in the production phase, which is why production is a higher-than-average share of emissions for meat and dairy.

Meanwhile, fruits and vegetables have predominantly production-phase emissions because the transport of food is relatively efficient, even over longer distances. As a result, fruits and vegetables from local farmer's markets are not necessarily lower emissions than those at large supermarkets. Because farmers typically bring relatively small quantities to the farmer's market, the transport may be much less efficient, which could result in a higher overall footprint than food that may have been grown further away but transported more efficiently.

Appendix C: Government Emissions

In the consumption-based emissions inventory, government agencies are considered final demand the same way households are, and so emissions associated with government operations and procurement are not attributed directly to households. However, these emissions are not insignificant – across the US, federal, state, and local governments had emissions totaling over 660 million metric MTCO₂e. Of this total, roughly 69% came from state & local governments, with the remaining 31% from the US federal government split between defense (24%) and non-defense sectors (7%).

If these government emissions were allocated to households across the US, it would be an average of 5.5 MTCO₂e per household. For Los Alamos County, this would be an additional 43,995 MTCO₂e countywide. These are “hidden” emissions that are not otherwise captured in the consumption-based emissions inventory, but still contribute to overall emissions nationally and globally.

Government emissions include transportation, buildings, and procurement of goods & services. Government emissions from transportation include everything from military aircraft to school buses. Because public transit is heavily subsidized in the US and associated emissions are not directly related to consumer spending, these emissions are allocated to government instead.

Government emissions from buildings include natural gas used for heating and water heating, as well as electricity use associated with the operation of the building. Embodied emissions from construction are also included. Government buildings include agency or department offices, legislatures, public schools and universities, ports and airports, courts and prisons, post offices, military bases, research laboratories, and more.

Governments spend large sums investing in infrastructure and take on those associated emissions. Roads, highways, and bridges all have large emissions associated with their construction due to the large amounts of asphalt, concrete, and steel used. Governments also build and maintain local water supply and resources, as well as some railway and public transit infrastructure, with additional emissions associated. Lastly, other procurement of a wide variety of materials and services, ranging from office supplies to special firefighting foams, all have emissions associated with them.



APPENDIX C.

Baseline Policy Assessment Memo





LOS ALAMOS COUNTY Baseline Policy Assessment

October 2023

Memorandum

To: Los Alamos County
From: Cascadia Consulting Group
Date: October 18, 2023
Subject: Los Alamos Climate Action Plan – Baseline Policy Assessment

INTRODUCTION

OVERVIEW

The Los Alamos Climate Action Plan (CAP) development process began with a **baseline policy assessment**. This policy assessment involved a review of peer jurisdiction climate action plans, intended to align the Los Alamos CAP with other climate planning documents to ensure that it reflects current standards and best practices. Relevant Los Alamos County and statewide climate planning resources were also reviewed to ensure targets, metrics, and goals align with existing priorities and regulations.

The memorandum summarizes findings from the baseline policy assessment. It is organized into the following sections:

- Overview and methodology
- Results of climate document review
- Key challenges, opportunities, innovations, and best practices

METHODOLOGY

To conduct the baseline review, Cascadia Consulting Group (“Cascadia”) began by working with the client team to develop a checklist of documents to review. The review included relevant 1) **climate action plans from other jurisdictions**, 2) **Los Alamos planning and policy documents**, and 3) **state and regional climate targets and initiatives**. The checklist included CAPs from other jurisdictions that:

- were developed by entities with similar demographic or geographic attributes, including those facing similar climate impacts;
- have advanced greenhouse gas (GHG) emissions analysis or other innovative elements; and/or
- focus on consumption and other sectors of focus for Los Alamos.

CAPs that the consulting team had previously developed were also included. Cascadia vetted each plan with the client team and noted why each plan or document was recommended for review. The final list of all reviewed policy documents is provided in the Planning & Policy Documents section.

The consultant team developed a [document review workbook](#) to standardize the document review and catalog best practices and resources. In this workbook, the team recorded existing

climate policies, programs, and targets for Los Alamos, New Mexico, and peer jurisdictions. The list of climate action policies and programs can be found in the *Climate Policy & Program Review* section on page 8 on this document.

Once the checklist and database were finalized, Cascadia then reviewed and synthesized these policies and programs to identify typical climate action-oriented policies, programs, and activities, and their existence in Los Alamos and peer jurisdictions. Cascadia also documented relevant climate targets to reference during the target-setting phase of CAP development. The Los Alamos CAP team also provided further information on the existence of specific climate policies and plans in the County. This review helped the team identify gaps in existing climate policies and programs and inform CAP action development. The team also used this review to identify **key elements and themes** across regional and state contexts, including noted challenges, opportunities, innovations, and best practices related to climate action planning and policy.

Policy Coding

Identified climate policies and programs were categorized by the climate action sectors depicted in the following table.

Climate Action Sector	Description
Government operations & cross-cutting	Strategies to reduce community and municipal GHG emissions through cross-sectoral activities and internal County policies and initiatives.
Buildings & energy	Strategies to facilitate the use of renewable energy sources, while also promoting more efficient energy use in new and existing buildings.
Mobility & transportation	Strategies to reduce GHG emissions from transportation by expanding the use of electric vehicles, increasing multimodal transportation options, and improving cycling and pedestrian infrastructure.
Consumption & waste	Strategies to reduce community waste and emissions generated from consuming and disposing of goods and materials.
Natural systems & water resources	Strategies that foster climate resilient natural landscapes by conserving water resources and preserving and expanding open space, critical habitats, and natural resources.
Community & resiliency	Strategies to ensure that all residents are prepared for current and future climate impacts.

RESULTS

PLANNING & POLICY DOCUMENTS

The following table describes key planning documents and policies reviewed through this assessment.

Document Name	Description/Relevance
Key County documents	
Los Alamos Resiliency, Energy, And Sustainability (LARES) Report	The LARES Report includes relevant climate, energy, waste reduction, water conservation and resiliency recommendations, actions and strategies for Los Alamos County. The recommendations, goals, and background info in this document will be used to guide CAP action and target/key performance indicator (KPI) development.
Los Alamos Strategic Leadership Plan 2023	This plan focuses on Los Alamos County Council's five goals and 22 priorities. One goal is focused on environmental stewardship and includes priorities for natural resource protection, greenhouse gas reduction, carbon-neutral energy supply, water conservation, and waste management. Council adopts new goals at the beginning of each year.
Los Alamos Energy & Water Conservation Plan	The 2022-2027 Water and Energy Conservation Plan focuses on goals and objectives, as ranked by the Board of Public Utilities (BPU). There is a need for conservation efforts from both sides of utility services – the supply (Department of Public Utilities, DPU) and the demand (Customers) – to achieve these strategic goals.
Los Alamos Long-Range Water Supply Plan (LRWSP)	<p>DPU supplies water for Los Alamos, White Rock, LANL, and Bandelier National Monument. To prepare for the future water supply needs of these communities, DPU developed a LRWSP, originally published in 2006. The 2017 update incorporates more recent data and developments relevant to water resource management. The objective of this plan is to evaluate projected demands in relation to available supply, while considering water quality and water rights risks to the supply, to ultimately ensure that both a viable physical supply and associated water rights are in place as needed to meet future demands.</p> <p>In addition to providing a plan for a sustainable future water supply, a LRWSP that covers at least 40 years addresses several regulatory requirements regarding water rights and water conservation.</p>
Los Alamos Short-Range Transit Plan	The Short-Range Transit Plan presents the setting for transportation in Los Alamos County, including demographic factors, the recent operating history of public transit services, information on connecting services, the evaluation of service alternatives, capital alternatives, funding alternatives, and institutional alternatives, ultimately presenting a recommended course of action over the next five years.

Document Name	Description/Relevance
Los Alamos County Comprehensive Plan	<p>This plan guides the physical development of Los Alamos County. Key focus areas are housing, neighborhoods, and growth.</p> <p>The plan supports: planning for modest growth; providing more choices in housing, especially downtown; protecting the character of existing residential neighborhoods; redeveloping vacant and blighted areas; focusing development priorities downtown; guiding development to property in and around current boundaries; protecting virtually all existing open space; maximizing connectivity for open space, trails and pedestrian ways; and supporting street and infrastructure design for safety and comfort of all users.</p>
Los Alamos Integrated Resource Plan (IRP)	<p>The IRP considers the electricity demand from residential, commercial, and industrial customers, electric vehicles, and potential residential and industrial electrification. The IRP takes a least-cost and technology-agnostic approach to meet the carbon neutral goal by 2040 for Los Alamos County and 100 percent renewable goal by 2035 for LANL. These goals are critical to LAPP's continued environmental leadership in supporting the New Mexico's Energy Transition Act (SB 489), which calls for 100 percent zero-carbon resources for investor-owned utilities by 2045 and rural electric cooperatives by 2050. Equally important is the core purpose of the Los Alamos Power Pool (LAPP) to provide electricity to the customers in a reliable and cost-effective manner. The LAC and LANL 2022 IRP underscores six objectives: i) manage cost in a prudent manner; ii) meet sustainability goals; iii) mitigate risks; iv) improve operational flexibility and reduce operational exposure; v) improve reliability; and vi) build a resilient portfolio with diversified and complementary resources.</p>
Los Alamos Environmental Sustainability Initiative	<p>This proposal outlines a coordinated approach to incorporate the value of environmental sustainability in County actions and achieve environmental, cost, and social benefits for the community. Building on existing County programs, programs in other communities, and recommendations of national organizations, the program areas listed below are proposed for Los Alamos County: Environmental Sustainability Policy; Waste and Recycling; Hydrocarbon Independence; Water; Land Use; Economic Development; Education and Outreach; and Measurement and Reporting.</p>
Los Alamos National Laboratory (LANL) EO 14057	<p>This Executive Order provides requirements that the Los Alamos National Laboratory must follow and provides a roadmap for net zero carbon emissions.</p>
Peer jurisdiction Climate Action Plans (CAPs)	
2021 Albuquerque, NM CAP	<p>The Albuquerque CAP provides an example of climate action engagement and goal development specific to communities in New Mexico. The Albuquerque CAP development had robust community engagement, which may be referenced as a model for Los Alamos engagement.</p>
2018 Sustainable Santa Fe, NM 25-Yr Plan	<p>Santa Fe is the closest metropolitan area to Los Alamos with a robust sustainability plan, and the jurisdictions share similar geography. The 25-year plan contains guiding actions for ecological resilience, economic vitality, quality of life, and social equity.</p>

Document Name	Description/Relevance
2020 City of Las Cruces, NM Climate Action Plan	Las Cruces is a larger city in New Mexico with GHG emission reduction goals and climate strategies that will help inform the development of the Los Alamos CAP. This CAP also includes community engagement and equity principles and describes vital aspects of inclusive climate action planning.
2023 Clallam County, WA CAP	This CAP is an example of a county-level CAP developed by Cascadia. Clallam County has a larger population than Los Alamos, but still in the less-populous range for the state.
2022 Livermore, CA CAP	The Livermore CAP has cutting-edge climate mitigation and resiliency goals and policies to draw from. The plan also addresses coordination with the Livermore National Laboratory, which may provide insight into how Los Alamos may integrate climate action with the neighboring national laboratory.
2016 Emeryville, CA CAP	The City of Emeryville is comparable in population size with Los Alamos and has set a goal to reduce GHG emissions to 40% below baseline levels by 2030 and 80% below baseline levels by 2050.
State and regional policy	
NM Climate Strategy	The New Mexico Climate Strategy provides critical statewide energy and mitigation information to inform CAP engagement and action development.
NM Energy Code	The new building energy code guidance may inform buildings and energy actions in the CAP and provide statewide targets for County alignment. Los Alamos adopts the NM State Energy Code as required.
2019 NM Energy Transition Act	This Act was created in collaboration with Community-based organizations, unions, energy groups, and sets a statewide renewable energy standard. The Los Alamos CAP should align with goals set in this Act.
Equity-Focused Climate Strategies for NM	This report assesses opportunities and strategies to integrate pollution reduction, resilience to climate impacts (e.g., heat waves), and energy and environmental equity into the state's decarbonization plans, with a focus on New Mexico's most environmentally burdened and socioeconomically and demographically vulnerable communities.
NM Solar Market Development Tax Credit	These statewide solar incentives may be considered when creating incentive-based actions and implementation plan.
NM Executive Order O 2019-003: Addressing Climate Change & Energy Waste Prevention	Los Alamos CAP should align with and reference this New Mexico executive order on climate change and energy waste planning.
NM HB 233: Energy Grid Modernization Roadmap	This roadmap for grid modernization establishes a corresponding grant program and fund and allows utilities to submit applications to the PRC for investments in eligible grid modernization projects.
NM Zero-Emission Vehicle (ZEV) Sales Requirements & Low-Emission Vehicle (LEV) Standards	New Mexico has adopted the California motor vehicles emissions standards and compliance requirements in the Title 13 of the California Code of Regulations.
19.15.27.8 Gas Venting & Flaring	These new rules prohibit routine flaring and venting and require operators to achieve a 98% gas capture rate by 2026.

Document Name	Description/Relevance
New Mexico National Electric Vehicle Infrastructure (NEVI) Plan	The NEVI Plan requires the New Mexico Department of Transportation (NMDOT) to submit an annual EV Infrastructure Deployment Plan (Plan) to the DOT and U.S. Department of Energy (DOE).
2023 Draft NMDOT Carbon Reduction Strategy	This strategy focuses on reducing on-road CO ₂ emissions through a set of activities including reducing vehicle miles traveled (VMT); reducing transportation emissions of vehicles; reducing emissions of NMDOT operations including materials; and carbon sequestration.

CLIMATE POLICY & PROGRAM REVIEW

The following table includes typical climate action-oriented policies, programs, and activities, and their existence in Los Alamos and peer jurisdictions. This table will be used to inform strategy and action development for the Los Alamos CAP. The full Baseline Policy Review workbook is linked [here](#). Note that a blank cell doesn't necessarily mean the policy/program doesn't exist in peer jurisdictions, just that it was not explicitly listed in the CAPs reviewed.

Government operations & cross-cutting			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Adopted GHG goals/commitments	✓	✓	Los Alamos target development and GHG commitments may occur during CAP development.
Dedicated County Sustainability Staff	✓	✓	Completed November 2022 per LARES recommendation. Additional staff will be needed to implement items in Climate Action Plan and provide ongoing education and outreach for the CAP.
CAP progress monitoring	✓	✓	Dedicate County resources to CAP implementation and consistently monitor progress. Develop an online portal that provides climate action information and resources for all stakeholders and community members. Los Alamos County is developing a portal to share CAP metrics and goals.
Green, affordable housing strategy		✓	Focus resources, policy, land use and programming on ensuring that all residents, including low wage workers, elderly and disabled live in the high quality, energy-efficient housing located in high opportunity neighborhoods (Sustainable Santa Fe). Maximize infill development, development of unused and underutilized parcels within existing development patterns, and facilitate complete and walkable neighborhoods (Livermore CAP).
			The Los Alamos Comprehensive Plan and Economic Vitality Strategic Plan have goals, policies, and strategies relevant to this strategy, but not yet implemented. The County is also developing a new affordable housing plan.
Green job program in frontline communities		✓	Provide community and economic development opportunities while restoring the land, water, and air and investing in frontline, underrepresented, and economically disadvantaged communities and local infrastructure (Albuquerque CAP).
			The Los Alamos Comprehensive Plan and Economic Vitality Strategic Plan have related goals, policies, and strategies.

Buildings & energy			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Street light LED retrofits	✓	✓	Convert street lighting and parking lot fixtures to LED. Los Alamos Public Works Department has a plan to replace streetlights with LED lights as they retire within 5 years. The County received \$400K grant from the state to convert streetlights.
Local green building ordinance/policy	✓	✓	<p>Support consistent and timely adoption of local and state legislation that requires developers and home builders to continue to meet current energy standards for newly constructed or renovated buildings and homes (Albuquerque CAP). Adopt increasingly stringent building energy codes on a regular three-year cycle for new buildings to meet the 2030 Challenge of net-zero greenhouse gas emissions (Sustainable Santa Fe).</p> <p>Los Alamos building codes are based on what the State of NM adopts. Nothing is preventing LAC from being progressive/aggressive about adopting the latest (and greatest) in energy codes; however, in talking with an inspector, sourcing the materials to meet the latest energy code standards is challenging here. For example, the inspector conveyed that a lot of the windows available in big box stores don't meet the 2018 IECC standards and cost is a barrier to window upgrades for community members and developers.</p>
Energy efficiency rebate/retrofit program	✓		<p>Financial incentives to promote energy efficiency retrofits, including heat pump water heaters. Promote access to programs that give incentives for window replacement, insulation, lighting, appliance upgrades, and other energy efficiency improvements for people with low-income (Albuquerque CAP, Sustainable Santa Fe). Implement a Neighborhood Retrofit Program to improve resilience in residential buildings (i.e., on-site power generation and storage, weatherization, air conditioning, etc.), with an emphasis on connecting incentives and resources with rental property owners and low-income residents (Livermore CAP).</p> <p>Outside of local weatherization assistance programs, the State of New Mexico Constitution prohibits publicly funded entities from providing incentives. This is known as the "anti-donation clause." Future CAP actions should explore ways to work within this clause and support energy efficiency programs, especially for low-income residents of Los Alamos.</p>
Green power purchasing program			<p>The LA Green Renewable Energy Certification (REC) Program lasted from 2008-2023. The complete ceasing of REC program incorporated with rate increase language may pass Council in late Fall 2023.</p> <p>DPU is ending this fund because the County provides enough utility-scale "green"/carbon-free power to all customers to no longer justify collecting this from subscribed customers. Customer participation in program has been low during the life of the program. In December 2020, BPU discussed a possibility of offering a Carbon Balance Program or alternative program, but no further action has been taken to date.</p>

Buildings & energy			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Solar power installation/subsidy program	✓	✓	<p>Support local and state-wide standards for community solar programs, micro-grid establishment and grid modernization prioritizing low-income areas. Form partnerships with neighborhoods, businesses, institutions, and utilities to increase solar development prioritizing frontline communities¹ (Albuquerque CAP).</p> <p>In Los Alamos, DPU assists with rooftop distributed solar installation by turning on/off power and installing net meters, as well as providing extensive information regarding the solar installation process. Current net metering language is as close to a subsidy as residents can receive on the county side.</p>
Natural gas ban for new construction			Restrictions on new natural gas hookups for new construction.
			LARES recommendation for Los Alamos, but not yet implemented.
Building electrification incentive/training program	✓	✓	<p>Provide rebates and other incentives for residents and business owners to electrify homes and buildings; support training programs for local contractors to learn about retrofits.</p> <p>The County has an anti-donation restriction on incentive programming. However, a grant is being pursued through Energy Efficiency and Conservation Block Grant (EECBG) to provide hands-on community efficiency education. DPU is currently heavily educating the public on the Inflation Reduction Act efficiency tax credits and rebates information.</p>
Green building policy	✓		<p>Require new buildings to be all-electric and incentivize electrification retrofits of existing buildings (Livermore CAP).</p> <p>LARES recommendation for Los Alamos, but not yet implemented.</p>
Point-of-sale green building requirements			Requirements to disclose energy use or implement energy retrofits at point of sale for residential or commercial buildings.
Burnout ordinance			Require replacement of gas-powered appliances with high-efficiency electric at burnout.
Energy use disclosure/benchmarking requirements	✓		Require energy use disclosure and benchmarking for buildings, starting with commercial and multifamily buildings over a size threshold.

¹ Communities that are most heavily impacted by climate change. They are often Black, Indigenous, People of Color (BIPOC) and low-income communities.

Buildings & energy				
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes	
			<p>Los Alamos Utility Engineering may be required to complete an Impact Study on proposed subdivisions and development sites. Study could cover hydraulic analysis, gas flow analysis, sewer flow analysis, and/or power analysis for planned demands. This study is mostly used to ensure that all the parts are sized correctly and not necessarily for efficiency of a building.</p>	
High performance green buildings standards	✓		<p>In 2006, Los Alamos County adopted Resolution 06-18, establishing High Performance Green Buildings Standards for County of Los Alamos New Construction Projects stating that all new County buildings must meet LEED Silver certification.</p>	
Energy storage and supply resiliency	✓	✓	<p>Ensure there is energy supply redundancy, especially within County facilities, critical facilities such as hospitals, schools and airports or neighborhoods vulnerable to power loss due to natural events (Clallam County CAP).</p> <p>In Los Alamos, DPU is a publicly-owned power provider. The public is always invited and encouraged to engage in energy decision-making. When pursuing a source of power generation, public hearings, town halls, public comment periods, etc. occur throughout the process from resource research to entering into an agreement. Electrical distribution is continually working on providing redundancies within the circuit systems. DPU also maintains a voluntary Medical Equipment Alert Registration in order to provide additional notification of planned outages as well as areas to prioritize for unplanned outages. DPU has Utilities Assistance Program for customers who may be experiencing an unexpected hardship, are living on a fixed income, or struggle financially to pay even basic bills. This program is funded through voluntary donations from the community. DPU observes the general rules and principles of the "LIHEAP Winter Moratorium" which prevents the shutoff of utilities from Nov-Mar (outlined in GR-13.06 of the DPU Rules and Regulations).</p>	

Mobility & transportation				
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes	
EV incentives	✓		<p>Sales and use tax exemption for eligible EV purchases. Encourage EV network expansion by helping connect citizens to information and rebates.</p> <p>LARES recommendation for Los Alamos, but not yet implemented.</p>	

Mobility & transportation			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
EV infrastructure plan	✓	✓	Plan for expanded EV infrastructure to support EV adoption in the community. Los Alamos has completed a grant application to CFI to develop charging infrastructure plan, award announcement date is November 2023.
EV charging & readiness requirements		✓	Work with a transportation planning organization to develop strategies and expand infrastructure to increase use of electric vehicles (Clallam County CAP). LARES recommendation for Los Alamos, but not yet implemented.
EV charging stations	✓	✓	Increase the presence of electric vehicle chargers. In Los Alamos, installation of three - Level 1 chargers is underway – the County is waiting on supply chain. Others are Level 2 and Level 3, some are free, have rates, are on public property, and are located at businesses. A few apartment complexes have and are beginning to install more chargers for their residents.
Transit service expansion	✓	✓	Increase funding for public transit and invest in free public transit for transit dependent riders, prioritizing youth, students, older persons, and residents with low incomes, also specifically target access to outlying neighborhoods, adjacent communities, and public green and open spaces. (Albuquerque CAP). In Los Alamos, the current local transit system is free and provides access to most of the county. Transit staffing has impacted certain routes, particularly those with lower ridership and overlapping routes already.
Bike/ped plan		✓	Expand on the development of non-motorized transportation options and infrastructure to support biking, walking, and other means of non-motorized transportation. Improve and create bike and walking infrastructure, especially in low-income and older neighborhoods, and invest in City-funded sidewalk improvement for safety and accessibility for all users and especially people with limited mobility (Albuquerque CAP, Clallam County CAP, Emeryville CAP, Livermore CAP, Lac Cruces CAP). Los Alamos County adopted a Bicycle Transportation Plan in 2017, which outlines several aspects, including completed and planned projects. The County, via several departments, hosts an annual "Bike to Work" day at a prominent and busy intersection. Los Alamos County is a Bronze level Bicycle Friendly Community and recently reapplied for award renewal but at Silver level.
TOD/TDM policy/requirements		✓	Requirements for new development over a size threshold to incorporate transit-oriented development (TOD) and transportation demand management (TDM) strategies that reduce vehicle trips (e.g., bike facilities, carpooling, transit incentives). Promote rideshare options with electric vehicles, prioritizing increased options for frontline communities (Albuquerque CAP).
Bike friendly community	✓		County is Bronze Level and is aiming for Silver Level.

Mobility & transportation			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Curb management policy			Requirements that guide the design, maintenance, and designations on how curb areas are utilized, such as the portion of the curb allocated to bike infrastructure v. parking.
Complete streets policy	✓		Street design requirements that reflect and accommodate multimodal transportation.
Parking requirements for new construction	✓		Parking requirements for new or existing construction to limit the use of single-occupancy vehicles (SOVs) and encourage multi-modal transport.
Transportation impact fee			A fee for new development to support multimodal mobility investments.
CTR program	✓	✓	Develop a commute trip reduction program for County employees that provides them with incentives to utilize alternative modes of transportation when commuting to and from work (Sustainable Santa Fe, Clallam County CAP). Los Alamos has promoted the "Drive Less Los Alamos" Walk, Bike, Ride, Carpool Initiative since 2022. This initiative provides resources on the Los Alamos County Trail Network, cycling safety measures, Atomic City Transit and Afternoon Express routes and schedules, New Mexico Park & Ride operations, and other commuting measures to reduce community VMT.
County green fleet purchasing policy	✓		Convert county fleet vehicles to electric where feasible. LARES Recommendation. Additionally, infrastructure is needed to charge the vehicles.
Public transit education program	✓		Partner with the media to feature bus rider stories in an effort to combat fear and prejudice while highlighting advantages and accessibility (Albuquerque CAP). Atomic City Transit has recommended developing a public education program on the benefits of transit services and the need to maintain/improve the overall transportation system in Los Alamos in their 2023 Short-Range Transit Plan update.

Consumption & waste			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Curbside compost/recycling program	✓	✓	<p>Provide universal access to recycling for residents, businesses, and customers everywhere (at home, at work, and on the go) (Sustainable Santa Fe).</p> <p>Los Alamos County offers extensive waste diversion programs for the community. However, recycling access can be increased at parks and public spaces and the County could adopt design standards for new commercial businesses to require a dumpster enclosure for both trash and recycle.</p>
Mandatory composting/recycling		✓	<p>Mandatory requirements for composting/recycling of waste. Santa Fe passed the Universal Recycling Ordinance for all commercial businesses, multi-family complexes, special events, and other spaces to offer on-site traditional and organics recycling to residents and patrons (Sustainable Santa Fe). Recycling programs are voluntary in Los Alamos and have excellent participation. The County is working on implementing a municipal food composting program for businesses and residents.</p>
Environmentally preferable purchasing policy	✓	✓	<p>A purchasing policy requiring that the County purchase environmentally friendly goods and services; plans include specifics on what types of products qualify and what portion of products the County agrees to purchase.</p> <p>Los Alamos Sec. 31-262. - Green purchasing preference adds preference factor of up to five percent for environmentally preferable purchases to be applied for any competitive procurement.</p>
Plastic bag ban		✓	<p>Adopt plastic bag, straw, and Styrofoam ban (Las Cruces CAP). In Los Alamos, this item has come up many times and has not gained enough community support.</p> <p>Some businesses in Los Alamos, such as Smith's in White Rock, have implemented pay-for-plastic measures and may provide a case study for expansion to other businesses in the County.</p>
Food service packaging ordinance			Policy to reduce polystyrene and other single-use food packaging items.
Recycling/composting education/outreach program		✓	<p>Fund physical infrastructure and coordination for neighborhood and school composting, including educational programs about how to compost and benefits for greenhouse gas reduction, soil health, regenerative agriculture, native crops, local foods, and plant-based diets. Promote methods of recycling, reuse, and composting in frontline communities -- highlighting their health and environmental benefits with the support of community-based educators (Albuquerque CAP). Develop and implement programs that improve reuse and repair (Livermore CAP).</p> <p>LARES recommendation for Los Alamos, but not yet implemented.</p>

Consumption & waste			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
C&D waste ordinance	<input checked="" type="checkbox"/>		Require that waste from construction and demolition (C&D) projects is minimized, reused, or recycled (Sustainable Santa Fe). Raise awareness for low-carbon and recycled building material (Livermore CAP). LARES recommendation for Los Alamos, but not yet implemented.
Hazardous waste remediation	<input checked="" type="checkbox"/>		Work with the federal government to encourage sufficient funding to continue implementing best practices in the remediation of Los Alamos National Laboratory (LANL) nuclear and RCRA hazardous wastes (Sustainable Santa Fe). In Los Alamos, there is legislative support for DOE Funding and Legacy Clean Up Remediation.
Food waste diversion program	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Expand existing food waste diversion and composting programs for large food producing commercial businesses (e.g., hotels, restaurants, caterers, cafeterias, etc.), and residential homes, and increase waste diversion in County Operations (Clallam County CAP). <u>The Los Alamos County Council approved the establishment of a municipal food composting program.</u>
Zero waste strategy	<input checked="" type="checkbox"/>		Refine and implement a zero-waste strategy with phased waste reduction goals, including both regulatory and volunteer actions to reduce the production of waste and change the focus from landfilling to waste reduction, recycling, and composting (Sustainable Santa Fe, Emeryville CAP). Los Alamos County offers extensive waste diversion programs for the community, and the County is currently developing a Zero waste strategy as part of CAP development.

Natural systems & water resources			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Parks & recreation plan	<input checked="" type="checkbox"/>		The 2022 Los Alamos Integrated Master Plan covers Parks and Rec, Library and Social Services.
Tree preservation ordinance	<input checked="" type="checkbox"/>		Reduce the heat island effect and address wildlife needs by increasing vegetation cover city-wide, creating a tree preservation ordinance, and updating the street tree ordinance to prioritize “greening” in frontline communities (Albuquerque CAP). Increase tree planting requirements and incentives for all public and private projects, including transportation projects that incorporate the use of trees (Clallam County CAP).

Natural systems & water resources			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Water-efficient landscape standards	✓	✓	<p>Los Alamos has an internal policy on tree preservation and mitigation under Parks and Rec Plan. Many of the pine tree species are under threat, necessitating a plan to restore natural habitats and ecosystems.</p> <p>Requirements aimed at reducing water consumption from landscaping by planting native and climate appropriate plants. Optimize management of reclaimed water, enhance groundwater monitoring, and expand water conservation programs (Sustainable Santa Fe, Clallam County CAP, Livermore CAP).</p>
Tree planting incentives/outreach program	✓		<p>Los Alamos has Water Rule W8, which is recommended but not enforceable.</p> <p>Enhance urban forest stewardship and public education (Sustainable Santa Fe).</p>
Water security strategy	✓		<p>Develop a water security strategy through collaboration and data sharing with other water management entities. Revise water code and land use practices to address water shortages (Albuquerque CAP). Develop a drought preparedness plan (Sustainable Santa Fe).</p> <p>LARES recommendation for Los Alamos, but not yet implemented. The Los Alamos Long Range Water Supply Plan (2017) and Source Water Protection Plan (2003) partially address this need, but further action is needed to develop an up-to-date, robust water security strategy.</p>

Community & resiliency			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Floodplain ordinance	✓		<p>Standards and restrictions for construction and development in designated flood zones or areas at high risk for flooding.</p> <p>Included in Los Alamos Section 24 of Code of Ordinances.</p>
Hazard mitigation plan	✓		Los Alamos County released a Draft Local Hazard Mitigation Plan in 2023.
Climate education and partnerships	✓	✓	<p>Invest in public education campaigns about mitigating climate change in partnership with frontline communities on a wide range of climate issues. Partner with public schools to make traditional ecological knowledge, climate change, and school gardens part of all curricula (Albuquerque CAP). Encourage schools and vocational organizations to incorporate sustainability related topics and hard skills in their curriculum and share the information through targeted community outreach to develop capacity to address sustainability issues (Sustainable Santa Fe).</p>

Community & resiliency			
Policy/Program	In Los Alamos?	In Peer CAPs?	Description/Notes
Vulnerability assessment	<input checked="" type="checkbox"/>		Conduct a climate hazard vulnerability assessment to understand how extreme weather and other aspects of climate change will impact people, services, and infrastructure, particularly vulnerable populations.
Climate impact resiliency	<input checked="" type="checkbox"/>		Identify vulnerable areas and populations and enhance equity-focused response in emergency planning to extreme heat events, floods, and wildfires (Livermore CAP).
Local food programs	<input checked="" type="checkbox"/>		LARES recommendation for Los Alamos, but not yet implemented. The newest draft of the Los Alamos Hazard Mitigation Plan is set to include some climate change information as well as equitable community information.
			Localize systems of production, for example food and agriculture, to reduce transportation time and emissions. Strengthen local food system, shorten the supply chain, reduce greenhouse gas emissions, and support the local economy by increasing community gardens and promoting local farm-to-fork culinary tourism in frontline communities through coordinated community education and collaboration (Albuquerque CAP).

Climate Action in Los Alamos

In addition to the achievements included in the table above, review of the LARES Report revealed the following achievements:

- In 2013, the Board of Public Utilities (BPU) made the original commitment to become a “net-zero electricity provider by 2040.”
- In 2015, the BPU adopted the Energy and Water Conservation Plan.
- In 2017, the Integrated Resource Plan for Los Alamos’s electric utility was released, recommending greatly increasing solar generation and storage capacity in the County.
- In 2017, the Environmental Sustainability Board (ESB) released a Sustainability Plan.
- In 2022, the DPU updated the Energy and Water Conservation Plan.
- In 2022, Los Alamos hired dedicated County sustainability staff to facilitate climate action plan development and provide ongoing outreach for the CAP.
- As of 2022, 40% of total County facilities over 5,000 sq. feet meet at least LEED Silver certification, and LAC Facilities department is switching out toxic chemicals to environmentally preferable products.
- As of 2022, Atomic City Transit provides free public transportation and LAC has started to invest in electric vehicles for its fleet.
- As of 2022, free curbside recycling is available County-wide.

The Los Alamos Resiliency, Energy and Sustainability Task Force (LARES) was convened in 2020 after residents submitted a petition to Council requesting climate action in the County. LARES released a report in 2022, outlining the following GHG reduction and climate resiliency recommendations for Council, by focus area:²

- General recommendations
 - Create a net-zero GHG long-term goal, baseline GHG emissions assessment, and strategic CAP. ^
 - Create sustainability staff positions. *
 - Invest in sustainable practices in County government operations.
 - Create a body of collaborative stakeholders and advisors for climate action. *
 - Partner with LANL and LA Public Schools.
 - Produce annual climate action report to present to Council and share with the community.
- Natural gas reduction
 - Require new construction to have compact design, solar access, solar heating, and adopt IECC standards.
 - Set a date to cut off natural gas hook-ups and encourage solar thermal and heat pump use.
 - Make energy audits available to property owners.
 - Include heating demand in electrical utility generation, transmission, and distribution supply planning. *
- Electricity

² Note that this is a synopsis of recommendations from the LARES Report, not an exhaustive list. Recommendations indicated by * are complete and ^ are in process. All other recommendations will be considered for future climate planning strategies.

- Develop a strategy to achieve net-zero carbon electricity goals.
- Develop strategy for demand management, curtailment of generation, and time-of-use metering. ^
- Implement the 2017 IRP. *
- Explore distributed energy generation and residential storage.
- Transportation & mobility
 - Improve public transit ridership and bike/ped infrastructure. ^
 - Increase EV charging infrastructure and County EV fleet. ^
 - Encourage private EV vehicle purchases and charging.
- Waste, consumption & natural resources
 - Set goal to eliminate municipal solid waste.
 - Reduce emissions through sustainable purchasing and consumption program. ^
 - Develop and adopt a comprehensive water conservation and watershed stewardship plan.
 - Develop a green infrastructure and stormwater management plan.
 - Manage natural and community resources for climate mitigation, resiliency, and cultural values. ^
- Community planning
 - Educate property owners on energy-saving measures. ^
 - Add commercial zoning within each area of town.

State and Federal Policy Alignment

Review of regional planning documents relevant policies and legislative updates for alignment with Climate Action Plan strategy development.

Federal policies

- [Corporate Average Fuel Economy \(CAFE\) Standards](#) – Reduces fuel consumption by raising fuel efficiency standards in passenger cars and light trucks.
- [Inflation Reduction Act](#) – Part of the IRA is investing in clean energy. This law provides subsidies, grants, loans and tax credits for green technologies and clean vehicles.
- [Infrastructure Investment and Job Act](#) – Provides \$550 billion in new spending on various infrastructure projects (i.e., roads, bridges, water, public transit, energy). This law aims to grow the economy and make infrastructure more sustainable, resilient, and just.

State policies

- [Solar Market Development Tax Credit \(SMDTC\)](#) – Passed in 2020. This bill provides a **10% tax credit** with a savings value up to \$6,000* for solar energy systems. The bill states that a business or homeowner who purchases and installs a solar energy system on or after March 1, 2020 are eligible for this tax credit. First come first served - the solar tax credit has an annual allotment of \$12M.
- [New building codes that comply with 2018 International Energy Conservation Code \(IECC\) energy code](#) – As of March 25, 2021, builders must comply with the requirements of the 2018 International Energy Conservation Code (2018 IECC) and New Mexico Construction Industries Commission (CID) Amendments. The 2018 IECC energy code will save (\$3) for every dollar (\$1) invested. **A single-family home will save an average of \$402 in annual energy costs** when compared to the requirement of the old 2009 New Mexico energy code based on a study

conducted by the Pacific Northwest National Laboratory (PNNL). Commercial building owners will save from \$5.89 to \$37.47 for every (\$1) invested based on the same PNNL study.

- [House Bill 233, Energy Grid Modernization Roadmap](#) – A roadmap for grid modernization, establishing a corresponding grant program and fund, and allowing utilities to submit applications to the PRC for investments in eligible grid modernization projects.
- [New Mexico National Electric Vehicle Infrastructure \(NEVI\) Plan](#) – NEVI Formula Program provides funding to New Mexico to strategically deploy electric vehicle (EV) charging infrastructure and establish an interconnected network. New Mexico Department of Transportation (NMDOT) expects to receive around \$38 million from this program over five years from the U.S. Department of Transportation (US DOT) to install EV charging infrastructure.
- [2023 Draft NMDOT Carbon Reduction Strategy](#) – This Strategy focuses on reducing on-road CO₂ emissions through a set of activities including reducing vehicle miles traveled (VMT); reducing transportation emissions of vehicles; reducing emissions of NMDOT operations including materials; and promoting carbon sequestration. The Strategy describes important context for reducing emissions from vehicles in New Mexico, identifies current New Mexico efforts, and lists future programs and actions the State will implement to reduce on-road VMT and meet emissions targets.

Targets and Metrics

Review of Los Alamos County policy documents, peer jurisdiction CAPs, and regional planning documents relevant targets and metrics for consideration in the Climate Action Plan, organized below by jurisdiction.

Los Alamos County

Review of Los Alamos County existing climate and sustainability targets.

- Increase the number of electric vehicles in the County fleet by at least two per year, eventually making 100% of light duty (passenger cars and trucks) plug-in electric (LARES Report).
- Convert municipal small engines, lawn/garden equipment, and golf carts, to be fossil fuel free within ten years (LARES Report).
- Set a community goal to reduce natural gas use by at least 2% per year (LARES Report).
- The BPU has adopted a strategic goal to phase out NG use in Los Alamos by 2070.
- The BPU made a commitment to become a net-zero electricity provider by 2040.

State and Federal Government

State targets and metrics

- [2020 New Mexico Climate Strategy](#) – Aimed at reducing greenhouse gas emissions at least 45% below 2005 levels by 2030, in accordance with Executive Order 2019-003.
- [Energy Transition Act \(ACT\)](#) – Passed in March 2018, the ETA establishes New Mexico as a national leader in clean energy. The ETA sets a statewide renewable energy standard of **50% by 2030** for New Mexico investor-owned utilities and rural electric cooperatives and a goal of **80% by 2040**, in addition to setting **zero-carbon resources** standards for investor-owned utilities by **2045** and rural electric cooperatives by **2050**.
- [Executive Order 2019-003: Addressing Climate Change and Energy Waste Prevention](#) – Signed in 2019, a breakthrough document that addressed climate change and energy waste prevention.

Established goal of reducing New Mexico's greenhouse gas emissions by 45% from 2005 levels by 2030 and charged state agencies with developing a plan to reduce methane emissions.

- [Natural Resources and Wildlife Oil and Gas Venting and Flaring of Natural Gas 19.15.27.8](#) – New rules that prohibit routine flaring and venting and require operators to achieve a 98% gas capture rate by 2026.
- [Zero Emission Vehicle \(ZEV\) Sales Requirements and Low Emission Vehicle \(LEV\) Standards](#) – New Mexico has adopted the California motor vehicles emissions standards and compliance requirements in the Title 13 of the California Code of Regulations. Manufacturers must meet the greenhouse gas emissions standard and the ZEV production and sales requirements, beginning with model year 2026 (7% of model year 2026 vehicles sold in New Mexico must be electric). These regulations apply to new passenger cars, light-duty trucks, and sport utility vehicles.

Peer Cities

Review of peer jurisdiction climate action plan targets, organized by climate action sector. These targets will be referenced during Los Alamos CAP target setting to ensure alignment with peer city plans.

Government operations & cross-cutting

City	Target
Santa Fe, NM	Achieve carbon neutrality by 2040 and transition to 50% renewable energy by 2025.
Emeryville, CA	Reduce GHG emissions to 80% below 2004 baseline levels by the year 2050.
Livermore, CA	Reach carbon neutrality by 2045.
Las Cruces, NM	Reduce community-wide emissions by 28% and 80% by 2050.

Buildings & energy

Green building

City	Target
Albuquerque, NM	Achieve 100% renewable energy use for government operations by 2025.
Santa Fe, NM	Increase percent of high density or mixed-use developments permitted annually by 10%.
Las Cruces, NM	Reduce community-wide emissions by 15% by 2050 through increased building energy efficiency and convert 6% of commercial and residential buildings to all electric by 2030, and 75% by 2050. Also, implement residential and commercial benchmarking program by 2035.
Emeryville, CA	Reduce total energy use of buildings built before 2016 by 15%.
Livermore, CA	Provide 100% renewable electricity by 2024, require all-electric new construction by 2023, and incentivize electric retrofits in 12% of existing buildings.

Energy

City	Target
Emeryville, CA	Increase local renewable energy capacity by 30% and achieve zero net carbon emissions for 50% of new construction.
Santa Fe, NM	Reduce community electricity and natural gas consumption by 1% per year (representing a reduction of 6 million kilowatt-hours (kWh) of electricity and 615,000 therms of natural gas annually).

Mobility & transportation***Electric vehicle infrastructure***

City	Target
Santa Fe, NM	Ensure that publicly accessible electric vehicle charging stations are located within 5 miles of any part of Santa Fe.
Livermore, CA	Add 1,283 publicly available chargers.
Santa Fe, NM	Transition City fleets to electric by 2025.
Emeryville, CA	Reduce emissions in the City fleet and employee commute by 30%.

Public & active transportation

City	Target
Santa Fe, NM	Increase public ridership annually.
Emeryville, CA	Reduce the total vehicle miles traveled on local roads by 30% and reduce the carbon intensity of vehicles through cleaner fuels and electrification by 30%.
Livermore, CA	Achieve a 10% bike mode share.
Las Cruces, NM	Reduce community-wide emissions by 44% by 2050 through increased use of public transit, electric vehicles, and planning and development practices.

Consumption & waste

City	Target
Santa Fe, NM	Achieve average regular residential recycling participation rate of 90% and establish a new operational policy that strives for 100% recycling participation in all City offices and at all events on City properties.
Emeryville, CA	Maintain or exceed 75% waste diversion each year and reduce the amount of organic waste that is landfilled by 75% each year.
Livermore, CA	Achieve zero waste to landfill from city facilities.

Natural systems & water resources

City	Target
Livermore, CA	Plant 1,000 trees by 2030.
Emeryville, CA	Expand the urban forest with a minimum canopy cover of 50% in medium density residential neighborhoods and 25% in other city areas.
Emeryville, CA	Reduce water use in the community by 30%.
Santa Fe, NM	See a year over year weather normalized decrease in total potable water consumed by all sectors and create at least two neighborhood-scale water conservation projects and programs.

Community & resiliency

City	Target
Santa Fe, NM	Achieve annual increases in the City's procurement of New Mexico grown produce.

KEY CHALLENGES, OPPORTUNITIES, INNOVATIONS, AND BEST PRACTICES

Challenges

The policy review revealed key challenges for consideration in the CAP development process, described below.

Short- versus long-term thinking

The Sustainable Santa Fe plan noted that it will be important to balance short-term solutions and easy wins with long-term goals that need to be started now to achieve a longer planning time frame. If created strategically, short-term climate actions can build the groundwork for more significant long-term change.

Regional versus local actions

Because GHG emissions and environmental issues extend beyond County boundaries, local action alone will not be sufficient to meet overarching sustainability objectives and goals. This means that in addition to critical Countywide actions, the CAP should also focus on influencing decisions beyond the County border and consider the importance of collaboration and coordination at a regional scale.

State emissions context

Per-capita GHG emissions in New Mexico are more than twice the national average, largely due to the state's emissions-intensive oil and gas industry. The Equity-Focused Climate Strategies for NM plan noted that the oil and gas sector are responsible for more than half of the state's GHG emissions and a significant share of air pollution, but most of New Mexico's GHG and health damaging air pollutant emissions are generated for services outside the State. More specifically, methane makes up more than half of oil and gas sector GHG emissions in the state, accounting for 35% of total statewide GHG emissions in the 2018 inventory. This plan also noted that because New Mexico experiences high levels of interstate traffic, communities are highly impacted by air pollution generated from this activity. Around 60% of on-road vehicle air pollutant emissions come from heavy-duty truck traffic—85% of which occurs as trucks just pass through New Mexico.

High natural gas use

The LARES Report noted that almost the entire Los Alamos community is heated by natural gas. One of the largest challenges to meeting emissions goals will be reducing and then eliminating natural gas usage, while building the infrastructure required to transition to electricity.

Opportunities & Innovations

The policy review revealed the following opportunities and innovations for consideration in the CAP development process, described below.

Centering actions that prioritize frontline communities

New Mexico has one of the highest poverty rates in the country, and low-income households often struggle to pay for utilities and fuels used to power their homes and vehicles. The equity-Focused Climate Strategies for NM described that rural and Indigenous populations also face access barriers

to reliable electricity and fuel, and some households do not have access to any. Through the energy transition, New Mexico has an opportunity to create stable, green jobs and promote energy resilience through solar and wind resources. During these changes, it will be critical to minimize environmental and health impacts and maximize benefits to the community, especially for those who have had limited economic opportunity and are most vulnerable to climate.

Peer jurisdiction CAPs centering actions that prioritize frontline communities revealed the following opportunities:

- The Albuquerque CAP provides specific strategies to build resilience in frontline communities for each climate sector. This CAP provided robust equity and accessibility considerations, including behavior change actions like partnering with the media to feature bus rider stories in an effort to combat fear and prejudice of public transport, while highlighting advantages and accessibility.
- The Sustainable Santa Fe Plan outlined the Santa Fe Verde Fund, created in 2016 by City Council to help reduce systemic poverty, achieve carbon neutrality, and empower Santa Fe's workforce.
- The Sustainable Santa Fe Plan also called for the City to explore the climate sanctuary city designation – a place that climate refugees (people hardest hit and displaced by climate change whether in the United States, the Americas or abroad) are welcome to re-start and renew their live.
- The Clallam County CAP aims to consider disproportionate impacts, shared benefits, and access to participation and technical knowledge in action development and implementation.
- The Livermore CAP promotes identifying local equity issues and removing barriers for people of color, low-income, people experiencing homelessness, and senior populations to take transit, walk, bike, use rideshare, or carshare.

Reinvesting in the local economy

Governor Lujan Grisham identified nine priority industries that will build on New Mexico's strengths and diversify the economy, including areas directly connected to climate action, such as sustainable and green energy and sustainable and value-added agriculture (NM Climate Strategy). Peer jurisdiction CAP actions promoted reinvesting in the local economy and green jobs in the following ways:

- The Albuquerque CAP and Sustainable Santa Fe Plan both had a separate section for green economic development and education recommendations.
- The Emeryville CAP adopted a strategy to support the educational base, green job skills and pipelines, businesses, and sustainable economic structures of the City.
- Sustainable Santa Fe promoted funding organizations to train young people in sustainability careers like weatherization, healthy food production and distribution, and biofuel production.
- Several CAPs promoted localizing systems of production, for example food and agriculture, to reduce transportation time and emission and building a job creation program in frontline communities.

Best Practices

The review of peer jurisdiction CAPs and state resources revealed the following climate action best practices:

- **Include mitigation & adaptation.** Most climate action plans include strategies, actions, and targets across mitigation and adaptation focus areas.
- **Include sector-specific targets.** Plans typically provide sectoral-specific targets—such as for buildings, renewable energy, or waste reduction—actions addressing climate impacts specific to their region (wildfire, drought, etc.).
- **Balance County action with partnerships.** Most climate actions combine local-level action with actions aimed at collaborating with regional, state, and commercial partners to address County-level limitations.
- **Use the best available science.** Actions and plans should use the best available science and provide frequent updates to incorporate changing best practices.
- **Prioritize co-benefits and alignment with other plans.** CAP actions should be prioritized based on an assessment of co-benefits and alignment with other County and regional strategic plans.
 - Co-benefits may include both resilience and GHG reduction benefits; community connectivity; public health; environmental quality; green economy (Livermore CAP).
 - Alignment and integration with other County priorities and plans is essential to action success. Strategic plans to consider for CAP alignment may include:
 - Comprehensive plan
 - Water security strategy
 - Food systems and food security strategies
 - Housing and development plans
 - Zero waste strategy
 - Public health and wellness resources
- **Plan for implementation & monitoring.** Implementation and monitoring of CAP actions is critical to long-term success. It is essential to have dedicated staffing focused on climate and sustainability issues and implementation (Sustainable Santa Fe, Clallam County CAP, Livermore CAP).
 - Dedicate County resources to CAP implementation and consistently monitor progress. Develop an online portal that provides climate action information and resources for all stakeholders and community members (Livermore CAP).
 - Adopt a commitment to monitoring implementation progress through regular status checks and developing annual work plans to focus and track implementation efforts (Emeryville CAP).
- **Prioritize certain actions and assess feasibility.** Actions should undergo a prioritization process. Triple bottom line or multicriteria analysis can provide insight on the feasibility of an action to support multiple objectives and climate goals (Sustainable Santa Fe, Clallam County CAP).

Other Considerations

The following considerations represent unique climate action considerations for the County based on proximity to a national laboratory and state context.

Partnership with Los Alamos National Laboratory (LANL)

Climate action development provides an opportunity to partner with LANL to identify new technologies and potential innovations in the field of energy and climate change. The City of Livermore, home to Lawrence Livermore National Laboratory and one location of the Sandia National Laboratories, integrated strategies in their CAP to partner with the Labs on projects related to hydrogen and renewable fuel projects, microgrids, and soil carbon farming. These National Laboratories are also major employers, providing opportunities to adopt actions like expanding employer adoption of EV use and charging infrastructure. In addition, the Sustainable Santa Fe Plan also outlined a strategy to work with the federal government to encourage sufficient funding to continue implementing best practices in the remediation of Los Alamos National Laboratory (LANL) hazardous wastes.

Landmark passage of the Energy Transition Act in 2019

Landmark passage of the Energy Transition Act in 2019 has unleashed extensive renewable energy activity across New Mexico. The NM Climate Strategy noted that now that we have a nationally leading clean electricity standard, New Mexico is focused on reaching that standard in the most affordable, reliable, and equitable way possible. This may include strategies and actions focused on grid modernization, utility scale generation and transmission, distributed energy resources, and rapid EV adoption. The NM Climate Strategy also described that new large-scale solar and wind projects will help New Mexico meet clean energy goals, bring economic development to the state, and support the decarbonization of electricity across the West.



APPENDIX D.

Zero Waste Strategy



LOS ALAMOS
COUNTY
Zero Waste Pathway

December 2023

Memorandum

To: Los Alamos County Environmental Services Division

From: Cascadia Consulting Group

Date: December 20th, 2023

Subject: Los Alamos Climate Action Plan – Zero Waste Pathway

INTRODUCTION

OVERVIEW

Cascadia Consulting Group (“Cascadia”) conducted a high-level examination of Los Alamos County’s existing solid waste collection programs and services, waste stream tonnage data, and discussed goals with representatives of the County Environmental Services Division (ESD) and produced this memo to summarize opportunities for the County to reduce waste and increase reuse by exploring zero waste strategies and actions.

We created this Zero Waste Pathway document and associated zero waste strategies to be integrated into the final Climate Action Plan. The memorandum is organized into the following sections:

- **Introduction.** Includes an overview and methodology.
- **Zero waste background.** Includes description of a zero waste strategy and existing County solid waste management programs and opportunities.
- **Zero waste strategies & actions.** Includes a roadmap to zero waste with short-, mid-, and long-term strategies and actions to reduce waste and increase recycling.

METHODOLOGY

To begin the zero waste strategy development process, Cascadia began by working with the client team to understand current waste practices and relevant documents to review. This meeting allowed the team to get a fuller understanding of the County’s current waste prevention, recycling, and diversion services and programs. In addition, we used this meeting to explore other County priorities or areas of interest (in addition to climate/emissions impacts) that intersect with its solid waste management initiatives and practices.

The team then reviewed available waste data and program information for Los Alamos County to identify the jurisdiction’s main material streams and top materials generated to help efficiently identify priority areas for further study and waste reduction efforts. The

review included relevant 1) **waste tonnages and collection services**, 2) **waste and sustainability planning documents**, and 3) **outreach and education materials**.

The consultant team developed a [**workbook**](#) to catalog existing waste practices in the County and identify gaps. In this workbook, the team recorded information on:

- Curbside Collection
- Drop-off Collection
- Education and Outreach Programs
- Goals and Targets
- Tonnage Data
- Waste Characterization Data

Once the workbook and current waste practices review was completed, Cascadia drew from our quarter-century of zero waste planning experience, pulling from our proprietary library of zero waste strategies, to crosswalk existing County programs with best practices and identify gaps. We also analyzed Los Alamos County's current program in comparison to waste services, policies, and programs from other jurisdictions with zero waste strategies to further understand best practices.

We selected best practices based on their relevance to Los Alamos' current path to zero waste, opportunities to improve current solid waste management programs and priorities, and external rubrics such as Zero Waste International's Zero Waste Hierarchy.

ZERO WASTE BACKGROUND

Achieving zero waste in Los Alamos County will involve rethinking the materials and goods that are consumed or purchased, and whether, when, and how they are thrown away. The strategies and actions outlined in this memorandum offer a pathway to decrease waste going to landfill by focusing on upstream waste prevention, while increasing recycling and composting.

WHAT IS A ZERO WASTE PATHWAY?

A zero waste pathway is an ongoing, evolving set of practices to conserve resources and reduce burdens on communities and the environment by responsibly producing, consuming, reusing, and recovering materials. A zero waste jurisdiction will reduce unnecessary purchase of goods and services, promote reuse and repair markets, and have strong systems to recover and recycle materials. The best way to manage waste is to prevent it in the first place. Because not all waste is reusable, recyclable, or compostable, the best way to keep materials out of landfill is prevention.

The following figure, from the EPA Sustainable Materials Management Hierarchy, ranks waste management strategies from most to least environmentally preferred.¹ The figure emphasizes reducing, reusing, recycling and composting as key to sustainable materials

¹ EPA. "Sustainable Materials Management." [Sustainable Materials Management: Non-Hazardous Materials and Waste Management Hierarchy | US EPA](https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy)

management and reducing greenhouse gas emissions that contribute to climate change. Working toward zero waste of resources requires that the County both minimize waste generation and maximize waste diversion through a circular economy. A circular economy is a waste system based on circular material loops and maximizing of product life, reuse, and recycling.



CURRENT WASTE MANAGEMENT SYSTEM

Solid waste in Los Alamos is managed by the Los Alamos County ESD which provides trash, recycling, and yard trimming collection services to all single-family residents, multifamily residents, and commercial entities as well as an Eco Station that accepts garbage, recycling, yard trimmings and other hard-to-recycle items for the community. As noted in the 2022 Los Alamos Resiliency, Energy And Sustainability (LARES) Report, these services are provided to 7,200 households, 333 commercial businesses (which includes multifamily properties), and a seven day per week Eco Station operation. The 2022 per capita MSW generation rates in the County include:

- 616 lbs./person/year - MSW landfilled from curbside collection (single family)
- 865 lbs./person/year - MSW landfilled from curbside collection and residential self-haul
- 1,064 lbs./person/year - MSW landfilled from all sources (curbside, self-haul, and commercial including multi-family)

All garbage generated in the County is currently sent to the Rio Rancho landfill, which is predicted to close in the next 5-7 years. The next landfill will be further away and may increase the cost of hauling and disposal, which highlights the importance of zero waste initiatives for the community.

In 2022, the County sent 14,114 tons of waste to the landfill (68% of total waste generated), recycled 2,797 tons (14% of total waste generated), and composted another 2,932 tons (14% of total waste generated). This resulted in a 28% diversion rate.

This is below the diversion rate goal set by the ESD and LARES task force to meet or surpass the EPA MSW recycling rate goal of 40% by 2020 (see Figure 1. Los Alamos County Waste Diversion). If the County includes asphalt and concrete designated as recycled clean fill, the diversion rate increased to 32% with an additional 862 tons repurposed. It is important to note that in previous years, the amount of concrete and asphalt recycled was much higher, bumping Los Alamos County's diversion rate to over 55%. Between 2020 and 2022, the County limited the amount and eventually stopped accepting concrete and asphalt but has started recycling it again in 2023.

In addition, ESD is set to launch a food scrap collection program for residents to drop-off their food scraps for free at the Eco Station and curbside collection for commercial businesses for no additional charge. This program will help the County significantly increase their diversion rate. County staff shared that this new program could divert up to 4,500 tons of organic material, including 3,000 tons of yard trimmings and 1,500 tons of food waste, each year from the landfill.

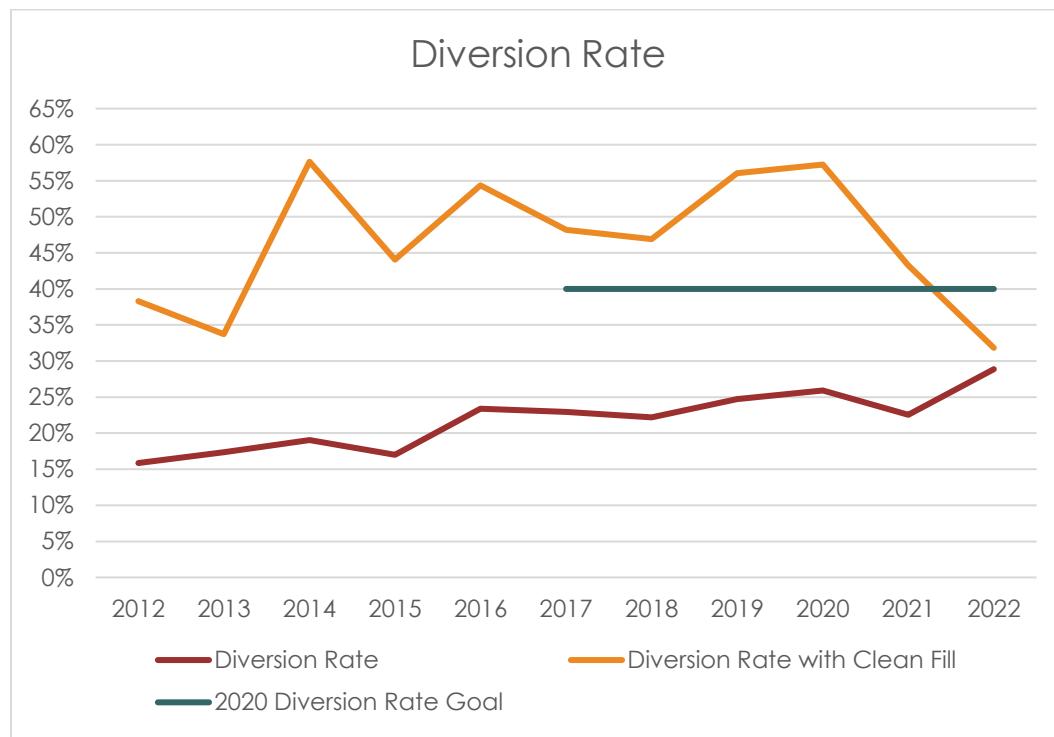


Figure 1. Los Alamos County Waste Diversion

Waste Characterization and Diversion

To effectively increase the diversion rate in Los Alamos County, it is important to understand the waste stream composition. A waste audit was performed in September 2016. The audit highlights the County's biggest area of opportunity – to reduce or divert organic materials, specifically food waste and yard trimmings as shown in **Error! Reference source not found.** To further divert the largest sectors of waste, the County performed the following measures:²

- In 2013, the County implemented a fully functioning windrow composting facility in Bayo Canyon at the site of the old wastewater treatment plant. If approved, the County has the opportunity to expand beyond organic yard trimmings and accept food scraps at the Eco Station which will keep more materials out of the landfill and further decrease greenhouse gas emissions.
- The County worked to increase local business participation in the recycling program. In addition, the County decreased the commercial recycling rates to incentivize more commercial recycling and provided outreach and education to businesses informing them about these adjusted rates and the benefits of recycling.
- The County glass drop-off recycle program started in late September 2012, and has helped increase the recycling rate.
- In 2014, Los Alamos County expanded the list of materials accepted in curbside mixed recycling including plastics #1-#7, aluminum and tin cans, and mixed paper products.
- The County opened a reuse center located at the Eco Station.

Education and Outreach

The following section outlines waste education and outreach programs that currently exist in the County. Zero waste strategies will build on these current efforts and introduce new actions to reflect best practices.

Outreach & Marketing Materials

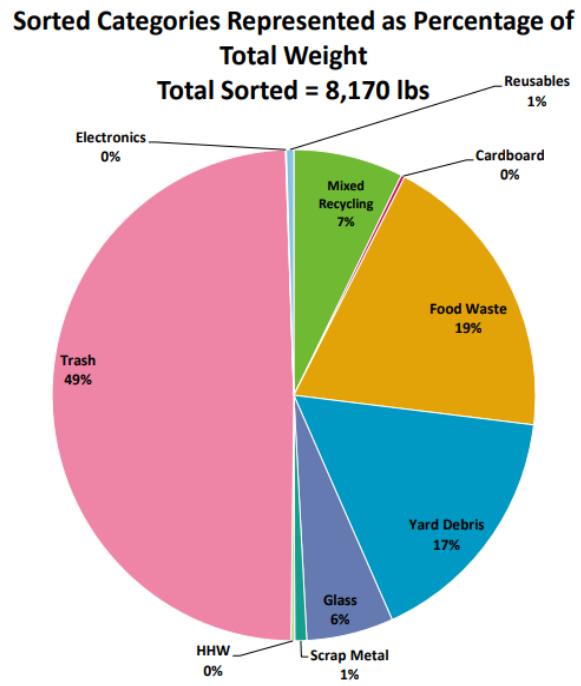


Figure 2. Waste Characterization Study, 2016

² Los Alamos County. 2017. Environmental Sustainability Plan. [Environmental Sustainability Plan 2017 - Approved December 2017 \(2\).pdf \(civiclive.com\)](http://Environmental Sustainability Plan 2017 - Approved December 2017 (2).pdf (civiclive.com))

ESD uses recycling guide flyers, utilities bill inserts, monthly articles and advertisements in local news outlets, and social media posts to provide information and education on county's collection programs and schedules and promote reuse and recycling.

Zero Waste Los Alamos

This program promotes waste prevention with information on how to compost at home, where to donate food, how to pack a zero waste lunch, a zero waste checklist, food waste prevention (including a family food waste prevention pledge), and other online resources. Other efforts include participating in community events and offering tours of The Eco Station.

Recycle Coach Application

The Recycle Coach app teaches residents and employees how to recycle properly, gives trash and recycling reminders, provides an instant search sorting guide, and educational activities for residents of Los Alamos.

Community Events

ESD hosts community that promote waste reduction recycling, including clean-up events, recycle art and fashion show, and zero waste champion of the year.

School Education Program

The County shares recycling information with schools and various clubs and groups. The aim is to promote waste prevention, recycling, and composting to K-12 students through classroom curriculum, student environmental clubs, and cafeteria collection programs.

Current Goals and Targets

The following table presents waste goals and targets established by the ESD in 2017.

Goal/Target	Sector	Progress
Meet or surpass EPA MSW recycling rate of 40% by 2020.	Recycling	24% (2016)
Achieve 75% diversion of construction and demolition (C&D) materials and debris (waste) by 2020.	C&D Waste	83% (2016)
Receive an excellent or good rating from at least 75% of respondents in survey for quality of residential recycling services.	Recycling	89% of respondents ranked as excellent or good (2016)

Opportunities to Prevent and Divert Waste

The following opportunities respond to the County's highest priority waste needs based on largest waste streams, highest waste generating sectors, and gaps in outreach and education programs.

- **Updated waste goals and tracking system.** The County should explore updates to the waste diversion goals and consider targets that align with those outlined by the ESD and LARES task force and consider waste reduction targets that account for the County's shift to focus on zero waste. These goals should also consider regional and national targets, be achievable, and respond to the data the County is currently tracking. In addition, more current and detailed data is needed to establish a baseline and show progress toward meeting zero waste goals. The County should build on the waste characterization study completed in 2016 by completing a new study every 3-5 years, including more detailed analyses and breakdown by material type and sector.
- **Increased education and assistance for the commercial and multifamily sectors.** Most of the County's education programs focus on residential single-family (see Education and Outreach). The County should consider creating education and outreach programs for the commercial and multifamily sectors that offer incentives, onsite technical assistance, and prioritize businesses or industries that generate the highest amount of waste.
- **Food waste reduction program.** The County produces significant amounts of food waste, and evolving best practices and food waste reduction programs present ample opportunity to reduce waste in this sector. Los Alamos residents alone sent over 1.6 million pounds of food to the landfill in 2019, which may generate more than 4000 tons of greenhouse gas emissions. According to the ESD, 491 tons of food waste (37%) came from commercial enterprises and 831 tons (63%) came from residential homes. Reducing this will save the County a significant amount of money while also supporting food security for residents and

decreasing emissions and water use. In the short-term, the County should prioritize outreach on the new food compost program for high generators of food waste, and in the long-term, look to expand to curbside collection for residents and consider accepting and incentivizing compostable paper and other compostable packaging.

- **Yard debris diversion and composting.** Yard debris made up 17% of the County's waste by weight in the 2016 characterization study. In addition to the reestablishment of the yard debris composting program in Bayo Canyon in 2013, the County can implement additional programs to reduce waste in this sector, including revisiting a pay-as-you-throw program and additional outreach for residents on sustainable yard care and composting.

Working toward zero waste of resources requires that the County minimizes waste generation and maximizes waste diversion. Planning for zero waste provides numerous co-benefits to the community, including 1) accelerating economic recovery by creating jobs and providing opportunities for local businesses, 2) safeguarding public health by reducing pollution, 3) mitigating greenhouse gas emissions through sustainable waste management practices, and 4) alleviating the global waste and consumption crisis.

ZERO WASTE STRATEGIES & ACTIONS

The following actions encompass new waste outreach, technical assistance, and education programs; enhanced regional partnerships; revised collection and processing methods; new fee structures, selected bans, and ordinances. Actions are organized into short-, medium-, and long-term categories to provide a prioritization roadmap for County staff implementation. This matrix provides a high-level overview all of the strategies and actions presented in the Zero Waste Pathway and greater detail and action descriptions are provided in the following sections.

Strategy	Action	Sector		
		Residential	Commercial	Other (C&D, County)
Short-Term Strategies (1-2 years)				
Expand current waste data tracking and reporting methods to establish new goals, including new zero waste targets and management plan.	Waste data tracking & characterization study	X	X	X
	Waste diversion & reduction goals	X	X	X
	Zero waste plan	X	X	X
Expand current education and outreach programs that focus on providing technical assistance and incentives designed specifically for commercial businesses and multifamily properties.	Waste collection systems & signage standards	X	X	
	Commercial technical assistance		X	
	Multifamily technical assistance	X		
	Awards & recognition programs		X	
	Tailored welcome packets	X	X	
	Targeted commercial food scrap outreach		X	
Plan for future extended producer responsibility (EPR), reuse, and circularity programs and policies.	Promote opportunities for reuse & repair	X	X	X
	Food waste prevention	X	X	
	Extended Producer Responsibility Policy	X	X	X
	Environmental purchasing policy			X

Strategy	Action	Sector		
		Residential	Commercial	Other (C&D, County)
Lead by example by adopting best practices for all government agencies and departments.	Centralized waste (co-located garbage, recycle, and compost bins)			X
Mid-Term Strategies (3-5 years)				
Explore options to further encourage and incentivize waste prevention and reuse.	Encourage single-use plastic reduction	X	X	
Promote and expand existing recycling services and programs.	C&D recycling and reuse			X
	Evaluate curbside residential food scrap collection	X	X	
	Event recycling assistance	X	X	
	Promote and increase participation of existing refrigerant recycling program			X
Long-Term Strategies (6-10+ years)				
Invest in long-term programs that promote source reduction and alternatives to landfill.	Waste behavior change program	X	X	X
	Expand accepted materials for compost	X	X	
	Landfill alternatives research and development	X	X	X
Consider future regulations and policies to help enforce sustainable materials management and zero waste.	C&D recycling & reuse requirements			X
	Pay-as-you-throw collection services	X	X	X
	Material disposal bans	X	X	X
	Commercial front and back of house collection	X	X	
	Mandatory curbside recycling collection	X		

SHORT-TERM STRATEGIES

These strategies include actions that will have a significant impact on increasing the diversion of recyclable materials and can be implemented in one to two years, while also establishing the groundwork needed to start planning for longer term strategies. An emphasis is also placed on building upon the ESD's existing outreach initiatives by incentivizing desired behaviors and targeting food waste prevention and diversion.

Action Name	Description
Strategy: Expand current waste data tracking and reporting methods to establish new goals, including new zero waste targets and management plan.	
Waste data tracking & characterization study	<p>Conduct and expand the scope of future waste characterization studies to include additional sectors (commercial and multifamily) and waste streams (recycling and compost), as well as a more detailed material list for sorting. Consider a waste characterization study every 3-5 years to gather current data, measure progress, and inform data-driven decision making. In addition, track and report monthly waste tonnages separated by sector and collection method (curbside vs. drop-off) to help understand performance in each of these areas.</p> <p>The additional data sets outlined above offer deeper insights into what sectors present the biggest opportunities for improvement, specific types of recyclable and compostable materials that are currently disposed as landfill but could be recovered, contamination rates, and ultimately where to prioritize and focus efforts to manage materials more sustainably.</p>
Waste diversion & reduction goals	<p>Using the data outlined in the action above, update the County's current waste goals and shift targets to align with zero waste and source reduction priorities. Consider adopting goals similar to those outlined in the 2022 LARES report which include a higher, long-term waste diversion rate, waste reduction per capita, and emphasis on materials that have a significant impact on the waste stream and GHG emissions, such as food waste and single-use plastics and other packaging. For reference, the LARES recommendations include:</p> <ul style="list-style-type: none">• <i>Increase diversion rate of materials to 90% of waste diverted from landfill within 7-10 years across the community (Municipal, residential, schools, commercial and industrial).</i>• <i>Reduce MSW generation per capita by 15% annually within 5 – 7 years.</i>• <i>Phase out the sale and use of single-use plastics within 10 years (most of which are not readily recycled without significant environmental impact).</i>• <i>Eliminate organic waste going to landfill within 3-5 years.</i>

Action Name	Description
	<ul style="list-style-type: none"> • Increase proportion of waste products and recyclables productively used or repurposed over time to 100% within 15 years.
Zero waste plan	Based on adopted zero waste goals and the recommendations outlined in this pathway, draft and implement a zero waste plan, considering actions to reduce the generation of waste and transition the focus from landfilling to waste reduction, recycling, and composting.
Strategy: Expand current education and outreach programs to provide technical assistance and incentives with a focus on initiatives designed specifically for commercial businesses and multifamily properties.	
Waste collection systems & signage standards	Standardize waste collection systems countywide – this has been accomplished for the residential sector but needs to be addressed for commercial and multifamily properties. This includes designated colors for collection bins for each waste stream, providing clear and consistent signage such as posters with “what goes where” and decals, and recommendation for all front-of-house or public facing bins to be co-located together. Start with garbage and recycling and then include compost once the new food scraps program is well established to encourage and simplify proper sorting. Explore the adoption of design standards for new commercial businesses and multifamily properties to require recycling infrastructure and a dumpster enclosure with enough space for all waste streams.
Commercial technical assistance	Create a technical assistance program for commercial businesses that offers a hotline, online resources, and in-person outreach to help with waste prevention, recycling, composting, and sustainable purchasing. This program would support front-of-house collection and assist with proper bin placement, signage, and potentially right-sizing of collection service levels if a pay-as-you throw system is offered by the County in the future.
Multifamily technical assistance	Provide education and outreach tailored for multifamily property managers to increase recycling and composting. This includes offering recycling toolkits and resources distributed to property managers, in addition to hands-on technical assistance. Consider providing door-to-door outreach to residents and free recycling totes that can be used to transport recyclables to trash chutes or refuse rooms and information on the food scraps drop-off program.
Awards & recognition programs	Develop and implement award and recognition programs that incentive waste reduction, recycling, and composting. This program might recognize achievements such as diverting 50%, 75%

Action Name	Description
	or 90% of waste from landfill, the most donated food to local charities, or the best new waste reduction or diversion program.
Tailored welcome packets	Informational packets are sent to all customers opening a new utility account, customized for residential, multifamily, and commercial customers. Information about waste prevention, reuse, curbside recycling, accepted materials at the Eco Station, and at other local recycling outlets is provided. Information is tailored to specific types of businesses (i.e., restaurants, retail, warehousing, distribution, manufacturing, transportation, etc.); or to either single- or multifamily residences. The packets also include drop-off hours, fees, and upcoming recycling events.
Targeted commercial food scrap outreach	Review customer lists to identify untapped large sources of food waste. Based on this information provide additional outreach for the largest generators (including schools, universities, and restaurants). Outreach should include information about known contamination issues that need to be addressed.
Strategy: Plan for future extended producer responsibility (EPR), reuse, and circularity programs and policies.	
Promote opportunities for reuse & repair	Support community reuse and repair by creating fix-it clinics, a community tool library, and online material exchange platforms and groups in the community.
Food waste prevention	Facilitate a food waste prevention network between businesses, NGOs, and research institutions to develop systems and infrastructure to reduce food waste and foster connections between sources of unwanted food and communities in need. Partner with local businesses, restaurants, and grocery stores to raise awareness of edible food recovery programs. Build upon existing Zero Waste Los Alamos resources and education campaign that provides food shopping, prep, and storage techniques to reduce spoilage; recipes to reduce food waste; and messages on reducing waste and choosing "ugly" produce. Reference the EPA's campaign toolkit for Food: Too Good to Waste for additional information and resources.
Extended Producer Responsibility (EPR) Policy	Support efforts currently underway across the United States to promote the principles of product stewardship. An EPR policy considers the environmental costs associated with a product throughout the product life cycle in addition to the market price of that product. With EPR, producers bear some or all the burden of waste disposal and recovery, including paying financial costs, planning (within requirements), and contracting for or enduring waste handling services. For implementation, consider partnering with the Product Stewardship Institute (PSI), a national non-profit membership-

Action Name	Description
	based organization located in Boston, Massachusetts. PSI currently is involved in the numerous priority product categories: carpet, electronics, gas cylinders, mercury products, paint, pesticides, radioactive devices, tires, and pharmaceuticals. Participate in pilot programs that offer solutions for hard-to-recycle items, like mattresses and furniture.
Strategy: Lead by example by adopting best practices for all government agencies and departments.	
Environmental purchasing policy	Require an environmental purchasing policy (EPP) for all County government agencies and departments. Through an EPP, departments adopt sustainable procurement criteria, including considerations such as post-consumer recycled content, recyclability, durability and reparability, minimal packaging, product and packaging take-back by vendor, lower toxicity, energy and water efficiency, reduced greenhouse gas or other life cycle impacts. The policy may include guidelines for identifying greener options, recommendations on specific products, instructions on how to search for greener products, and sample language to include in requests for bids and procurement contracts.
Centralized waste (co-located garbage, recycle, and compost bins)	Implement a centralized waste program for all government buildings to sort and dispose of all waste and recycling in centralized bins located in designated common areas. Confirm that each location has adequate recycling service and food scraps collection. To implement centralized waste, replace deskside receptacles with co-located garbage, recycle, and food scrap bins, including in public facing areas with clear and proper signage.

MID-TERM STRATEGIES

The following strategies focus on actions that require additional analysis, involve a longer implementation timeline, or have a lower impact in terms of increasing the overall diversion rate. These initiatives should be prioritized after short-term actions and are anticipated to take three to five years.

Action Name	Description
Strategy: Explore options to further encourage and incentivize waste reduction	
Encourage single-use plastic reduction	Support the New Mexico Recycling Coalition (NMRC) Plastic Action Team (PAT) in their efforts to pass the Plastic Pollution Reduction Act of 2023. Encourage businesses to use reusable or recyclable packaging materials and take-out containers (consider compostable packaging being accepted in food scrap composting). Encourage stores to sell bulk food to customers to reduce packaging waste and incentivize residents to bring reusable bags and to-go reusable containers. Consider additional policy options such as a ban on Styrofoam and fee for disposable plastic bags.
C&D recycling & reuse	Provide a C&D recycling, salvage, and deconstruction toolkit for construction professionals which includes how-to instructions and contact information for local service providers. Promote educational resources for building professionals through permit counter brochures, industry events, and industry publications. Continue to align with the County's current goal to achieve 75% diversion of C&D materials and debris. See Long-Term Strategies for additional C&D strategies.
Strategy: Promote and expand existing recycling services and programs.	
Evaluate curbside residential food scrap collection	Consider offering food scraps curbside collection to all residential single-family and multifamily customers. Evaluate the results from the residential drop-off program and commercial curbside collection to inform the roll-out. A robust and targeted education and outreach is critical for success to increase quantity and quality of food waste collection for composting and minimize contamination.
Event recycling assistance	Provide waste reduction and recycling assistance and toolkits to event planners as well as guidelines on container number/placement for various types of events, color-coded signage templates, tools for estimating food/materials quantities, information on donating leftover edible food, tips for preventing waste. Provided materials include sample language on recycling, food donation, and waste prevention that event organizers can include in caterer, vendor, and exhibitor contracts.

Promote and increase participation of existing refrigerant recycling program	Align with the LARES recommendation to support efforts to recycle refrigerants and improve refrigerant management and use by individuals, businesses, and government operations. Support ESD's program to destroy or recycle refrigerants at end of life and consider participating in UAMPS' "See Ya' Later Refrigerator" program, which provides cash incentives to properly dispose of old refrigerators and freezers. Work to ensure that residents transport refrigeration units to the Eco Station for proper extraction and disposal of refrigerants.
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LONG-TERM STRATEGIES

These long-term strategies require strategic planning efforts that will take longer than five years and include the exploration of regulations and policies after voluntary and incentive-based actions and programs have been adopted.

Action Name	Description
Strategy: Invest in long-term programs that promote source reduction and alternatives to landfill	
Waste behavior change program	Promote a zero waste culture change by investing in behavior change programs that identify the barriers to a behavior, pilot and implement programs to overcome these barriers, monitor programs, and share outcomes.
Expand accepted materials for compost	Consider expanding materials accepted in the food scraps program to include compostable paper and other compostable packaging. Additional planning regarding capacity and feasibility to add compostable products is required with significant importance to include all stakeholders such as city planners, and other community members.
Landfill alternatives research and development	Once source reduction and diversion opportunities have been explored or implemented, work collaboratively with industry, government, and educational institutions, such as Los Alamos National Laboratory, to find solutions to landfilling materials that are difficult to reuse, recycle or compost. Keep up to date on the latest zero waste technology and funding opportunities and work with the neighboring labs on research, development, and policies to support innovations. Expand waste processing options to sort and divert remaining waste, including dry waste processing and mixed waste processing to recover recyclable or compostable materials. This research includes waste-to-energy conversion programs that convert locally collected organic waste into usable energy or byproducts, as the technology becomes available.

Action Name	Description
Strategy: Consider future regulations and policies to help enforce sustainable materials management and zero waste	
C&D recycling and reuse requirements	Require that waste from construction and demolition projects is minimized, reused, or recycled. Raise awareness for low-carbon and recycled building material. Set a goal for builders and permit holders to recycle an established percentage of materials from new construction and improvements and from alterations and demolitions. Specifically, incorporate reusable and recycled materials into road construction and development projects, such as asphalt, and set a goal to divert a percentage of road construction materials annually.
Pay-as-you-throw collection services	Continue to explore the option of pay-as-you-throw solid waste collection services, which the County explored in 2019 as highlighted in the LARES report. Evaluate and research the feasibility of offering different cart and dumpsters sizes at adjusted rates (the more you throw away, the more you pay), starting with smaller garbage containers to incentive desired behavior to increase proper sorting of accepted recyclables, yard trimmings, and other organic material. This system is important to consider again as a long-term strategy.
Material disposal bans	Decrease waste sent to landfills by adopting ordinances to ban specific recyclable or toxic materials from entering local transfer stations and landfills.
Mandatory Commercial front and back of house collection	Explore a requirement to implement centralized waste stations (trash, recycling, composting) in all businesses. Develop outreach and enforcement programs to ensure commercial and residential organics recycling across the county. Consider requiring a portion of surplus food be donated to ensure edible food is put to the highest and best use. Mandatory food waste reporting, especially for large waste generators, can help track progress and compliance
Mandatory curbside recycling collection	Require residents to have curbside collection of residential recyclables. Consider mandatory organics in the future.



APPENDIX E.

Survey Summary





LOS ALAMOS
Climate Action
Plan Survey
Summary

November 2023

ATTACHMENT B

LOS ALAMOS
where discoveries are made

OVERVIEW

SURVEY OVERVIEW

This report summarizes results from a survey administered to Los Alamos County residents to gather feedback to inform the development of the county's first Climate Action Plan (CAP). The survey focused on understanding **community priorities and concerns** related to the County's future, climate change impacts, and climate action, as well as **level of support for possible strategies for the CAP**.

The survey was administered online via SurveyMonkey from **September 19 to October 18, 2023**. Los Alamos County staff advertised the survey through the County's Sustainability website, Los Alamos Daily Post, paper flyers, a press release, a utility bill insert, County Line, Los Alamos County Main Distribution email list, and multiple social media pages. The survey was offered in English and open to the public on the County's website.

Community feedback is an essential part of the Los Alamos CAP development process. The planning team will consult the results of this survey to inform the CAP strategy and action list to ensure community priorities and concerns are reflected across all proposed CAP actions. All proposed draft CAP actions will also undergo a **multicriteria analysis (MCA)** to ensure actions are viable, impactful, cost-effective, center equity, and minimize potential unintended or negative impacts such as on vulnerable or low-income populations.

In total, **552 Los Alamos community members completed the survey**.

SURVEY METHODOLOGY

The survey design was informed by survey best practices, climate communication resources, and County staff input. Referenced best practices include:

- Minimizing response bias by asking neutral questions and using "balanced scales" by having an equal number of options on both sides of the response spectrum for each question, and by providing opportunities for additional open-ended comments.
- Using plain language appropriate to the public audience and avoiding jargon (e.g., "supporting climate action" and making the county more "sustainable and resilient" rather than "reducing greenhouse gas emissions and improving resilience to climate impacts").
- Considering audience attention span by keeping the survey short enough so that respondents can successfully complete the survey.
- Keeping questions on sensitive topics, such as about demographics or contact information, optional and at the end of the survey.

The survey design also drew from other available climate-focused surveys such as the Yale Program on Climate Communication's *International Public Opinion on Climate Change* survey.¹ This global survey gauges public opinion on climate change beliefs, attitudes, policy preferences, and behaviors from respondents around the world.

Overall, the survey received 552 responses, 2.9% of the County's population, which represents a 95% level of confidence with a +/-4% margin of error. This summary overviews response rates for

¹ [Yale Program on Climate Change Communication: International Public Opinion on Climate Change \(2022\)](https://climatecommunication.yale.edu/reports/international-public-opinion-on-climate-change-2022/)

each question and trends and variations in responses across questions. This summary also compares survey response demographics to the County's population to examine survey representativeness. *Section 5: Optional demographic questions* describes this comparison and shows that survey respondents reflect most County demographic categories (within a 5% difference).

Survey responses were exported to Excel and summarized for each question using graphs, tables, and short descriptions (see *Survey Results* section starting on page 4). Key takeaways from open-ended responses are also provided, when applicable. All open-ended responses to a given question were entered into ChatGPT with the instruction to synthesize the top 5 themes from the responses. The consultant team then manually reviewed survey responses to confirm that the themes produced by ChatGPT were accurate. The full list of responses is in *Appendix B: Open-Ended Responses*.

KEY THEMES

Key themes from the online survey results are summarized below.

Topic	Key Themes
Climate knowledge and impacts	Nearly half of respondents know a lot about climate change (48%) and are most concerned about drought, water supply, and ecosystem impacts of climate change.
Community vision and priorities	Respondents who support climate action want to see enhanced energy efficiency, a transition to renewable energy, improved public transit, access to electric vehicle (EV) chargers, more water conservation, and protected green spaces and natural systems in Los Alamos. Respondents who do not support climate action would like to see fewer mandates, prioritization of issues other than climate change, and support for community business opportunities. In general, the community also cares about promoting a strong and diverse local economy, reducing waste, and facilitating education and collaboration on climate issues.
Climate action concerns	Many respondents are concerned about the economic impact of taking climate action, including the cost to transition to renewable energy, potential job loss, and taxpayer burden.
County's role in climate action	Many respondents share the desire for Los Alamos to be a leader in climate action, stressing the importance of taking proactive action to prepare the county for the future by leveraging scientific knowledge and innovation. Respondents also voiced concern and skepticism about the validity of climate change and the effectiveness of taking climate action locally, including hesitancy around introducing mandates and regulations.
Ongoing action	Many community members are already taking action to reduce greenhouse gas (GHG) emissions and promote resilience through reducing waste, using sustainable yard care practices, purchasing environmentally friendly products, and buying second-hand items such as clothing and furniture.

SURVEY RESULTS

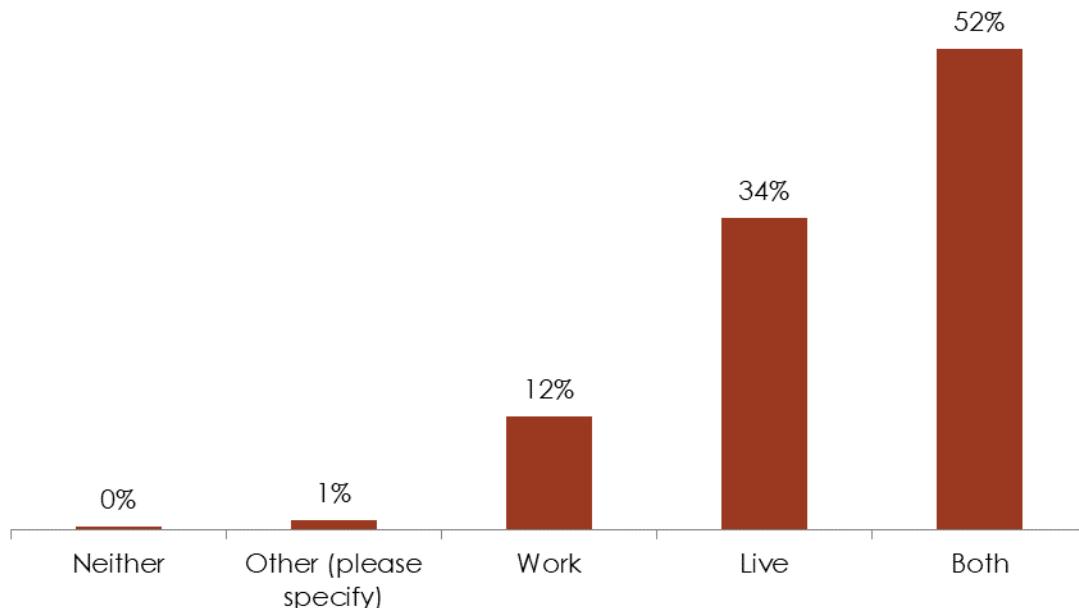
SECTION 1: INTRODUCTION

Question 1: Do you live or work in Los Alamos County?

Answered: 551, Skipped: 1

- As shown in Figure 1, the majority (52%) of respondents **both live and work** in Los Alamos County. About one third of respondents (34%) **just live** in the county and a minority (12%) **just work** in the county.

Figure 1. Respondent relationship to Los Alamos County.

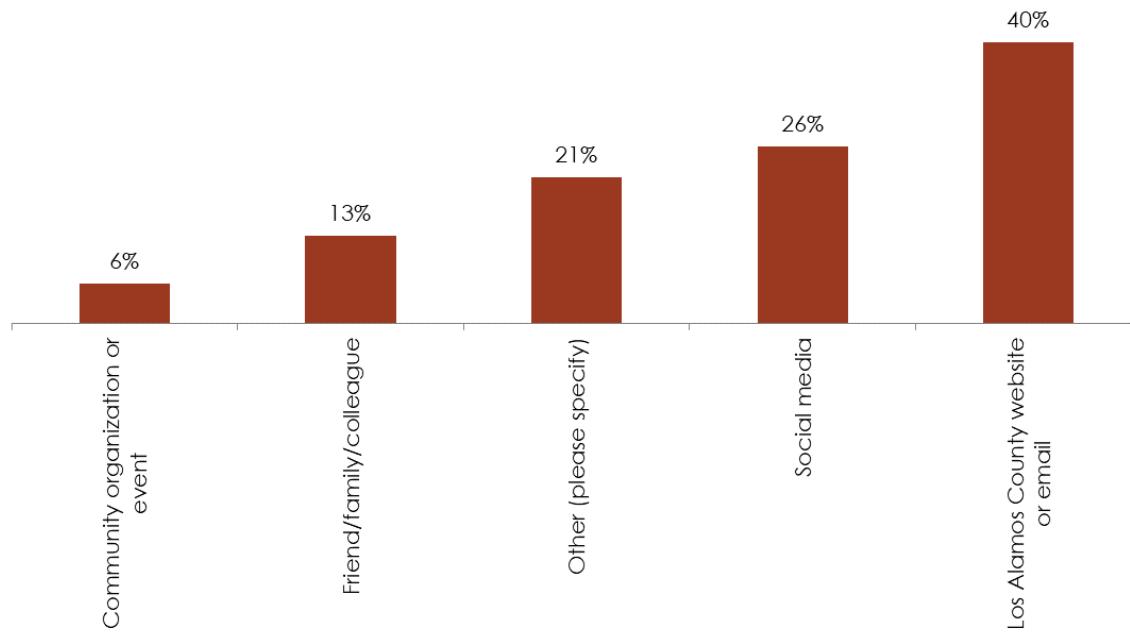


Question 2: How did you hear about this survey? Select all that apply.

Answered: 549, Skipped 3

- Most respondents heard about the survey through the **County's website or emails** (40%) or via social media (26%; see Figure 2).

Figure 2. How respondents heard about the survey.

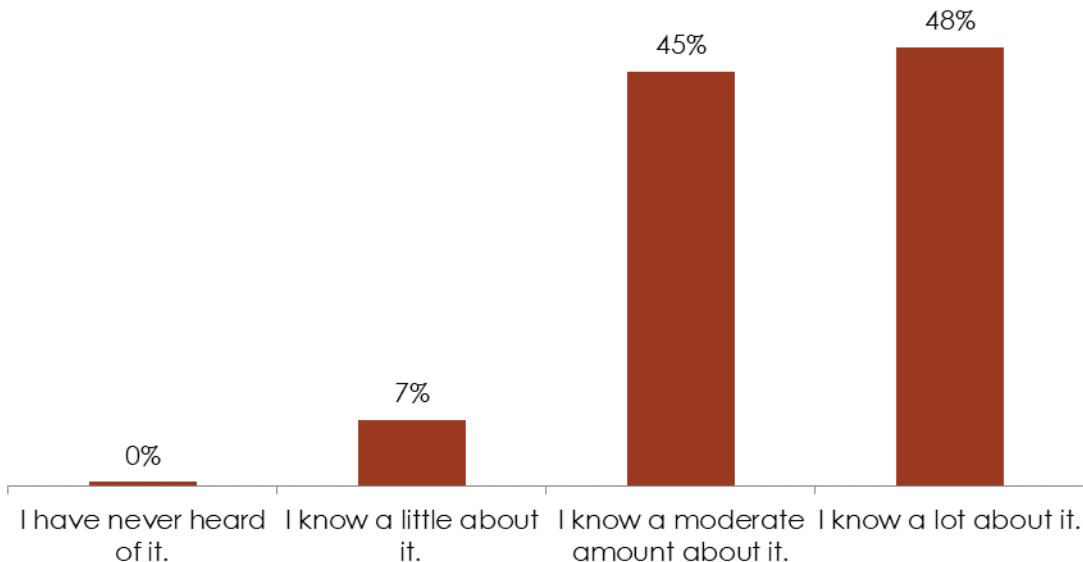


Question 3: How much do you know about climate change?

Answered: 550, Skipped: 2

- Most respondents **know either a lot** (48%) or a **moderate amount** (45%) about climate change (see Figure 3).

Figure 3. Respondent knowledge about climate change.

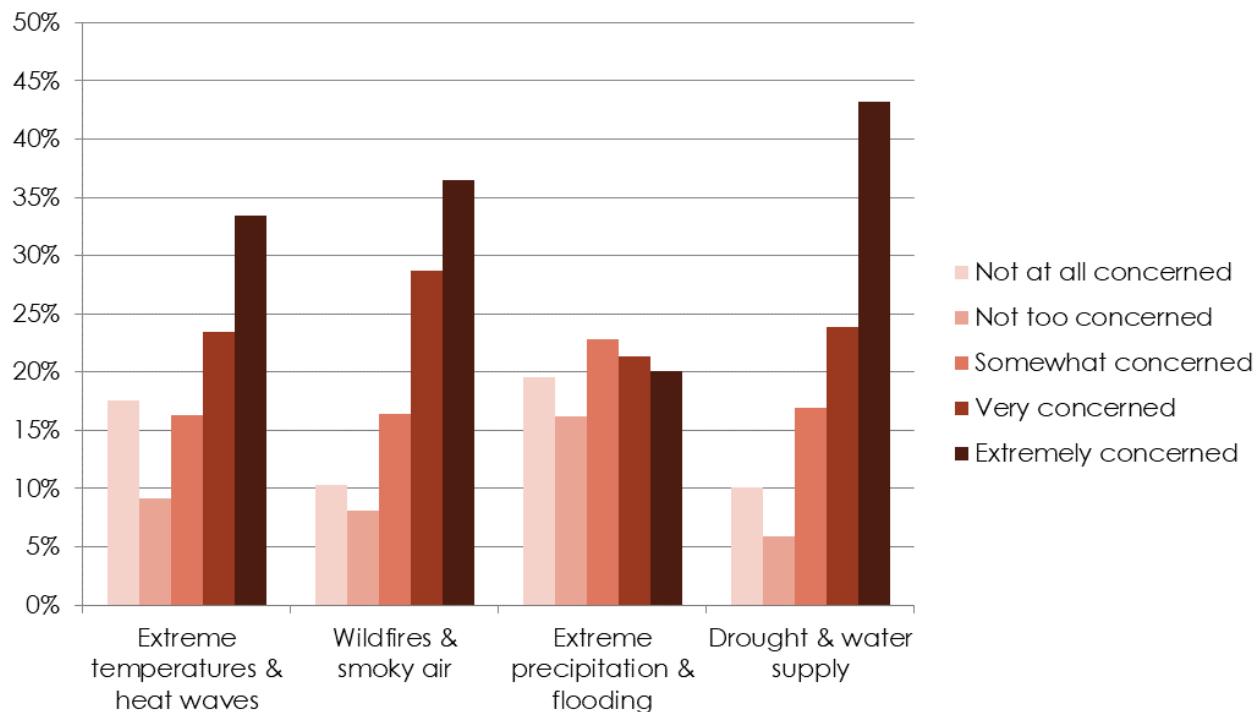


Question 4: How concerned are you about the following climate change impacts?
Please indicate your level of concern for each.

Answered: 547, Skipped: 5

- Respondents are **most concerned about drought and water supply** with 43% of respondents being extremely concerned about it (see Figure 4).
- Respondents are **least concerned about extreme precipitation and flooding** with 20% of respondents being not at all concerned about it (see Figure 4).

Figure 4. Respondent concern regarding climate change impacts.



Question 5: Are there any other climate change impacts that you are **VERY CONCERNED** about? (Open response)

Answered: 239, Skipped: 313

The following top 5 key themes were identified from this open response question in order of most heard to least heard:

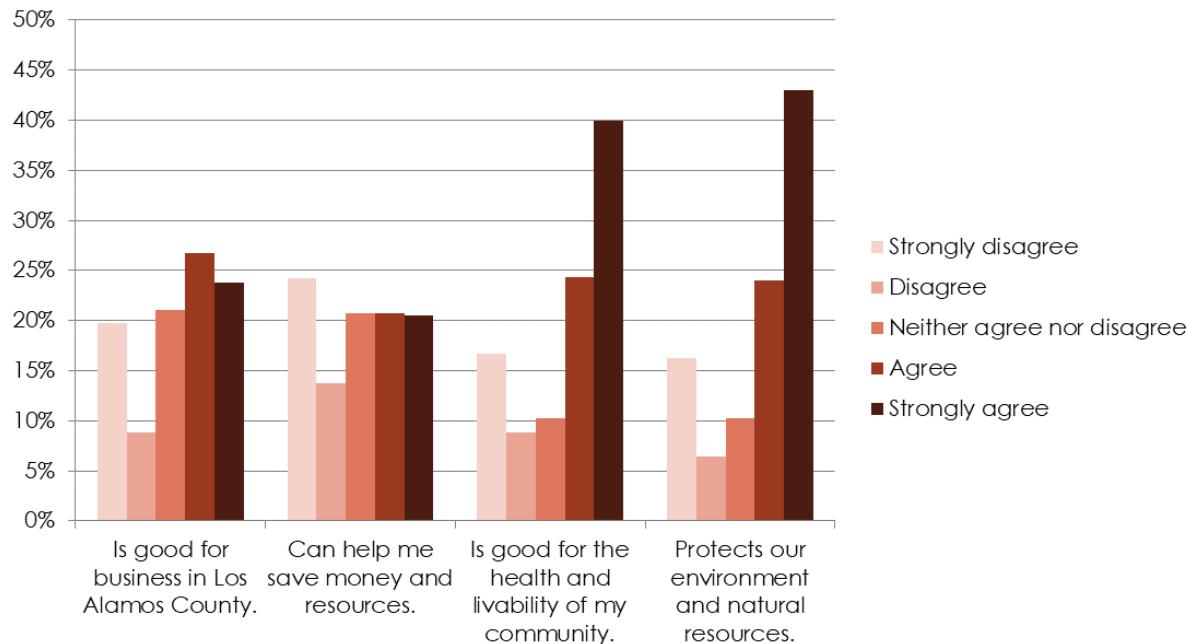
- **Skepticism** about the validity of climate change.
- Concern about the **economic impact** of taking climate action including the cost to transition to renewable energy, potential job loss, and taxpayer burden.
- Concern about the **environmental impact** of solar, wind farms, and electric vehicles.
- Desire to **focus on local and regional issues** such as sustainable agriculture, forest management, and water resources.
- Concern about the impact of climate change on **wildlife and biodiversity**.

Question 6: Please rate your level of agreement with the following statements. For each statement, please select the option that best matches your view. *Taking action on climate change in Los Alamos County...*

Answered: 547, Skipped: 5

- Many respondents **strongly agree** that taking action on climate change in Los Alamos County will “protect our environment and natural resources” (43%) and “is good for the health and livability of my community” (40%; see Figure 5).
- Respondents are more **split on their level of agreement** on whether climate action “can help me save money and resources” (24% of respondents strongly disagree) and “is good for business in Los Alamos County” (20% of respondents strongly disagree; see Figure 5).

Figure 5. Level of agreement on benefits of climate action.



Question 7: What other benefits can be realized from taking action on climate change in Los Alamos? (Open response)

Answered: 193, Skipped: 359

The following top 3 key themes were identified from this open response question in order of most heard to least heard:

- Skepticism** about the effectiveness of taking climate action locally.
- Recognition that taking climate action can help to **improve the environment, save money, and lead to a more sustainable community**.
- Desire for Los Alamos to be a **leader in climate action**, stressing the importance of taking proactive action to prepare the county for the future.

SECTION 2: VISION & TARGETS

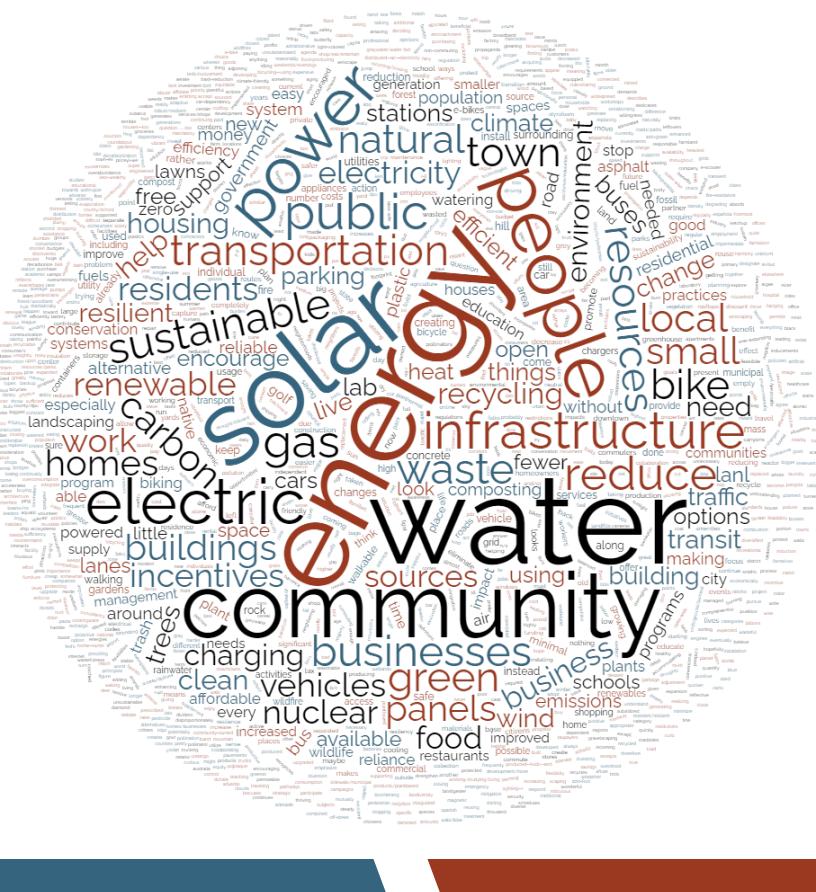
Question 8: What would a sustainable and resilient Los Alamos look like? (Open response)

Answered: 305, Skipped: 247

The following top 7 key themes were identified from this open response question in order of most heard to least heard (see Figure 6):

- There would be enhanced **energy efficiency** and a transition to **renewable energy** sources while ensuring reliable power distribution.
 - It would prioritize **conserving water**.
 - There would be improved **public transit**, access to **EV chargers**, and safe and connected **pedestrian and bikeways**.
 - There would be **reduced waste** and/or **increased waste diversion**.
 - It would have a **strong and diverse local economy** that supports small businesses and is less reliant on LANL.
 - It would have a community that is well **educated** about sustainable practices and knows how to be a **collaborative part of the solution**.
 - It would be **resilient to wildfire** through wildfire mitigation efforts, such as forest thinning.

Figure 6. Word cloud of responses, with word size representing number of mentions.

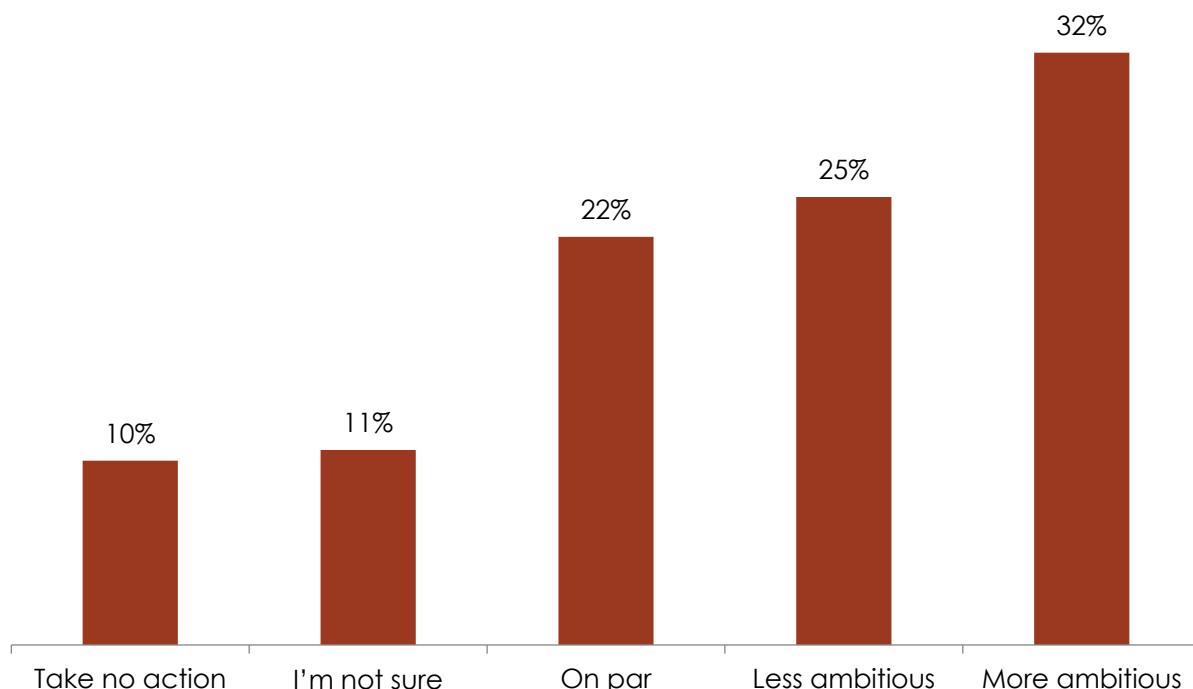


Question 9: The state of New Mexico has a goal to reduce greenhouse gas emissions 45% by 2030 (compared to 2005 baseline levels). This ambitious goal will require implementing new regulations and programs across major emissions sectors, including transportation, buildings (electricity and natural gas), and solid waste. Compared to the state target, Los Alamos County's target should be....

Answered: 506, Skipped: 46

- As shown in Figure 7, 32% of respondents think Los Alamos County's targets should be **more ambitious** than the state of New Mexico's targets with the remaining respondents indicating: less ambitious (25%), on par (22%), unsure (11%), or no action should be taken (10%).

Figure 7. Respondent feedback on Los Alamos County emission reduction targets.



Question 10: Please elaborate on why you believe this should be Los Alamos County's target. (Open response)

Answered: 304, Skipped: 248

If respondents thought Los Alamos County should be **more ambitious** than the state:

- Respondents believe that the county should be a leader in climate action due to level of communitywide education, wealth, and scientific expertise.
- Respondents think that the County should leverage the scientific knowledge and innovation in the community.

- Respondents believe that taking climate action is urgent and therefore the County should set ambitious goals.

If respondents thought Los Alamos County should be **less ambitious** than the state:

- Respondents are skeptical about the validity of climate change.
- Respondents are concerned about the economic impact of taking action.
- Respondents are resistant to mandates and would prefer voluntary actions.

If respondents thought Los Alamos County should be **on par** with the state:

- Respondents are concerned about the economic impact of being more ambitious on working-class families.
- Respondents support being aligned with the state goals.
- Respondents would prefer voluntary behavioral changes over mandates.

If respondents were **not sure** where Los Alamos County's targets should be in relation to the state:

- Respondents would like more information before deciding.
- Respondents express concern about the feasibility of achieving targets.
- Respondents express a desire for the County to take leadership in climate action, recognizing the county's unique position as a highly educated community known for being scientific innovators.

If respondents thought Los Alamos County should **take no action**, therefore setting no targets:

- Respondents are skeptical of climate science, expressing thoughts that it is a hoax or that climate scientists exaggerate the urgency of taking action.
- Respondents believe it is not the government's place to impose regulations for climate action.
- Respondents express concerns about the socioeconomic impact setting targets would have on low-income populations.

SECTION 3: CLIMATE STRATEGIES

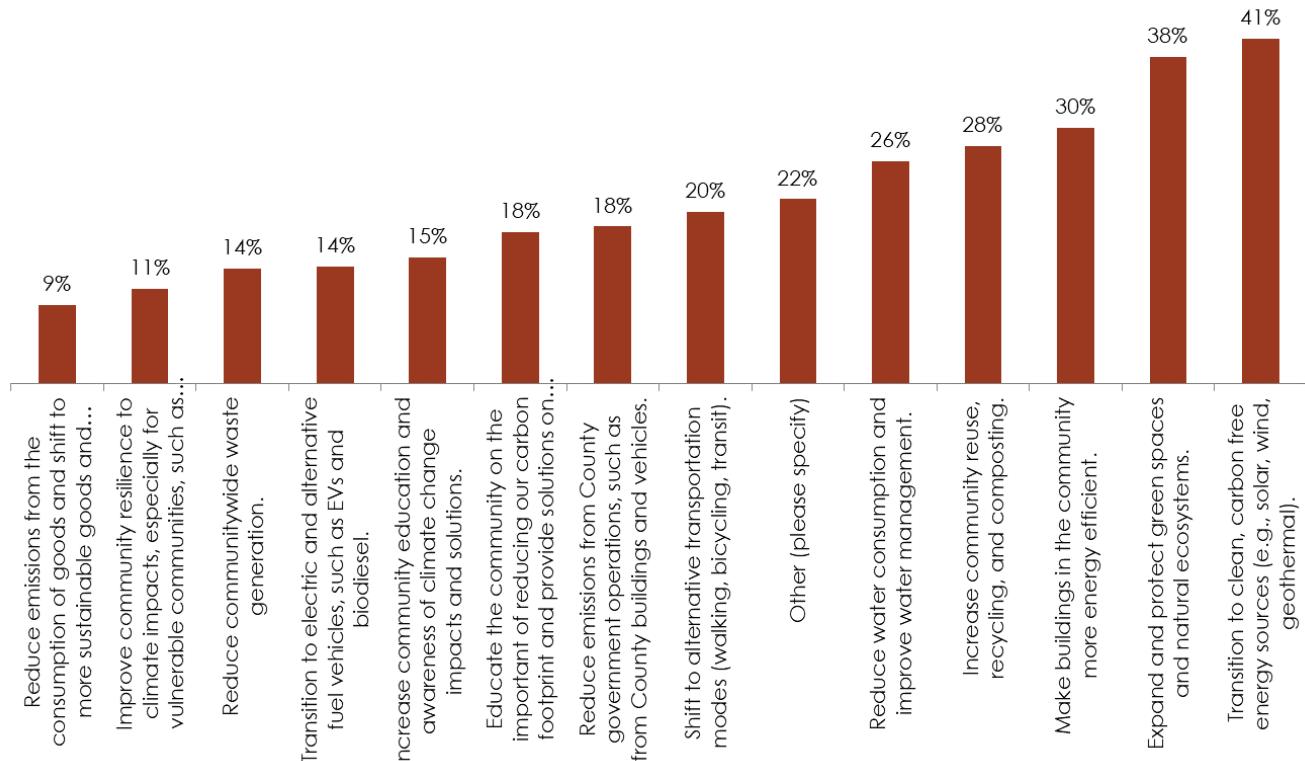
Question 11: What TOP THREE STRATEGIES do you think the Los Alamos Climate Action Plan should focus on? (Choose up to three)

Answered: 465, Skipped: 87

The top chosen strategies among respondents were (Figure 8):

1. Transition to **clean, carbon free energy sources** (41% of respondents selected strategy among the top three for the CAP's focus).
2. Expand and protect **green spaces and natural ecosystems** (38% of respondents selected strategy among the top three for the CAP's focus).
3. Make buildings in the community more **energy efficient** (30% of respondents selected strategy among the top three for the CAP's focus).

Figure 8. Percentage of respondents who selected strategy among the top three for the CAP's focus.



Question 12: What do you see as significant BARRIERS or CHALLENGES to implementing these strategies? (Open response)

Answered: 313, Skipped: 239

The following top 4 key themes were identified from this open response question in order of most heard to least heard:

- Concern about the **cost** of climate action.

- **Skepticism** about the validity of climate change.
- **Resistance to the change** these strategies would bring.
- Concern about the **politics** surrounding climate change.

Question 13: Do you have any additional feedback on these strategies? Are there any key strategies that you think are missing or actions you would like to see included in this plan?

Answered: 172, Skipped: 380

The following top 5 key themes were identified from this open response question in order of most heard to least heard:

- Importance of **education and outreach**, emphasizing the importance of transparency.
- Desire to **promote sustainable infrastructure, energy resources, and renewable energy**.
- Desire for **sustainable transportation options** and **access to EV chargers**.
- Desire for the County to **support local businesses** and focus on **local job creation**.
- Importance of **water conservation** and **sustainable waste management** in climate action.

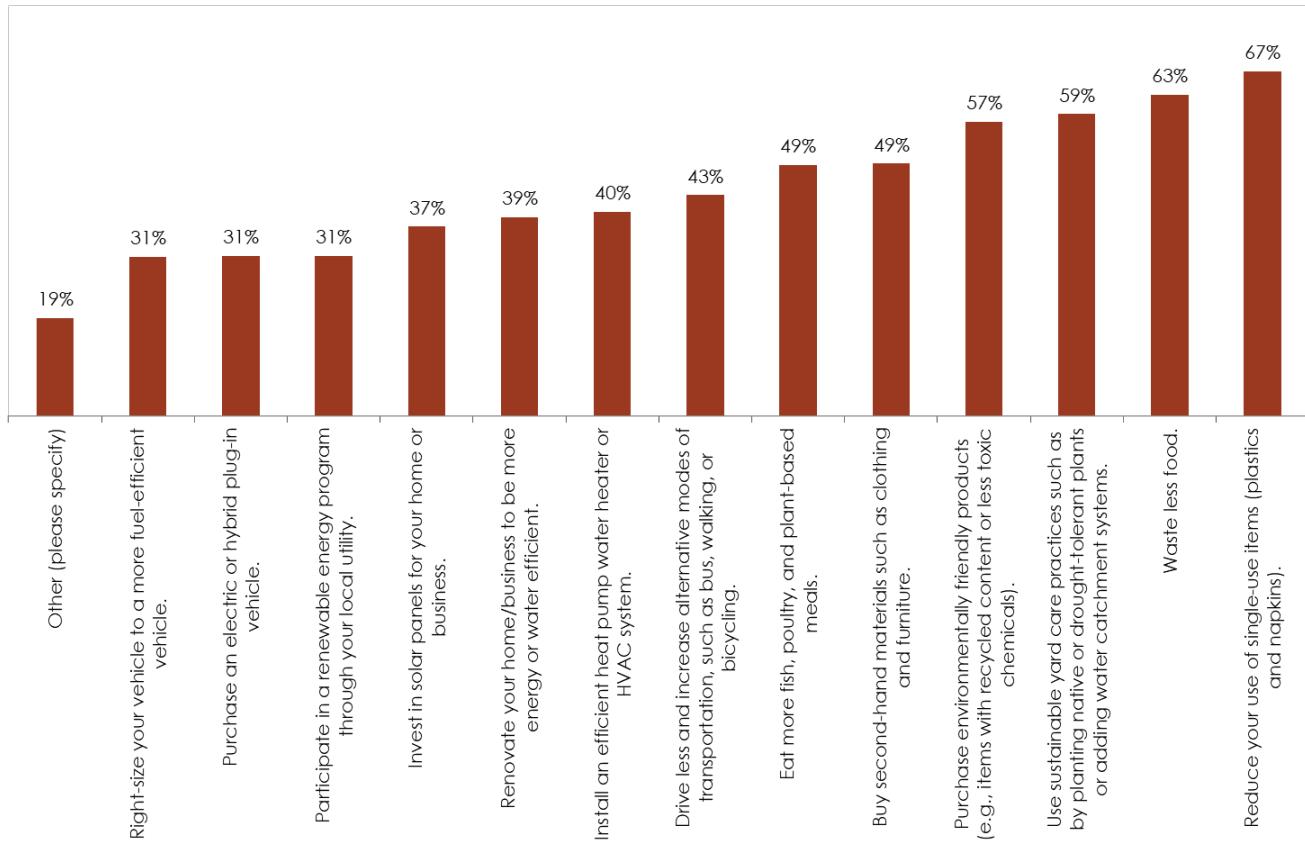
Question 14: What are some things you or your household/business HAVE DONE or would be WILLING TO DO to support climate action? (Select all that apply)

Answered: 456, Skipped: 96

As shown in Figure 9, most frequently chosen actions respondents or their business have done or are willing to do to support climate action were:

1. Reduce your use of single-use items (plastics and napkins) (67% of respondents).
2. Waste less food (63% of respondents).
3. Use sustainable yard care practices such as by planting native or drought-tolerant plants or adding water catchment systems (59% of respondents).
4. Purchase environmentally friendly products (e.g., items with recycled content or less toxic chemicals; 57% of respondents).

Figure 9. Actions respondents have taken or are willing to take to support climate action.



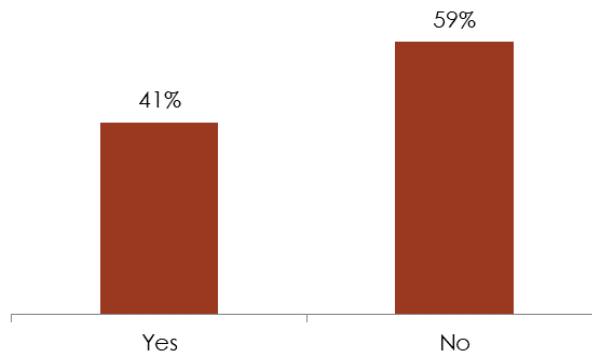
SECTION 4: STAYING INVOLVED

Question 15: Can we email you about additional engagement opportunities for the Climate Action Plan? (You will receive approximately one email per month).

Answered: 469, Skipped: 83

- A majority of respondents do not wish to be contacted about additional engagement opportunities for the Climate Action Plan (59%; see Figure 10).

Figure 10. Respondents who wish to be contacted about additional engagement opportunities.



Question 16: Email? (Open response)

Answered: 189, Skipped: 363

If respondents answered yes to question 15, they were prompted to share their email address for contact.

Question 17: Name? (Open response)

Answered: 186, Skipped: 366

If respondents answered yes to question 15, they were prompted to share their name for contact.

SECTION 5: OPTIONAL DEMOGRAPHIC QUESTIONS

Question 18: What is your zip code? (Open response)

Answered: 438, Skipped: 114

- Most respondents live in area code 87544 (65%) and 87547 (25%; see Table 1) which encompass the most populous areas of the county.

Table 1. Respondents' zip codes.

Zip code	
87544	64.8%
87547	24.9%
87025	0.2%
89547	0.2%
87532	2.1%
87566	0.7%
87506	1.8%
87655	0.2%
87507	0.5%
87548	0.2%
87505	0.7%
88547	0.5%
87508	0.9%
87537	0.5%
87581	0.2%
87571	0.2%
85744	0.2%
87567	0.2%
87544-2110	0.2%
87545	0.5%
87533	0.2%

Question 19: What is your gender?

Answered: 432, Skipped: 120

- Half of respondents (50%) identify as a woman, 47% identify as a man, and 2% identify in another way (see Table 2). Survey data on gender is not comparable to data from the U.S. Census, which reports sex rather than gender.

Table 2. Gender of survey respondents.

Gender	
Woman	50%
Man	47%
I identify another way	2%

Question 20: If you identify in another way, how would you describe your gender?

Answered: 11, Skipped: 541

- Of the 11 respondents who identify their gender in a way other than man or woman, 18% identify as non-binary, 9% identify as transgender man, and 73% identify in another way (see Table 3). The U.S. Census does not currently share comparable data on gender.

Table 3. Gender of survey respondents who identify in another way.

Gender	
Non-binary	18%
Transgender man	9%
I identify another way	73%

Question 21: Are you Spanish, Hispanic, or Latino?

Answered: 408, Skipped: 144

- Most respondents do not consider themselves to be Spanish, Hispanic or Latino (82%; See Table 4). This is representative of the County's demographics in the U.S. Census which includes 18% of the population identifying as Hispanic or Latino (see Table 5).

Table 4. Spanish, Hispanic, or Latino ethnicity of survey respondents.

Spanish, Hispanic, or Latino Population	
No, I do not consider myself to be Spanish, Hispanic, or Latino.	82%
Yes, I consider myself to be Spanish, Hispanic, or Latino.	18%

Table 5. U.S. Census race/ethnicity.

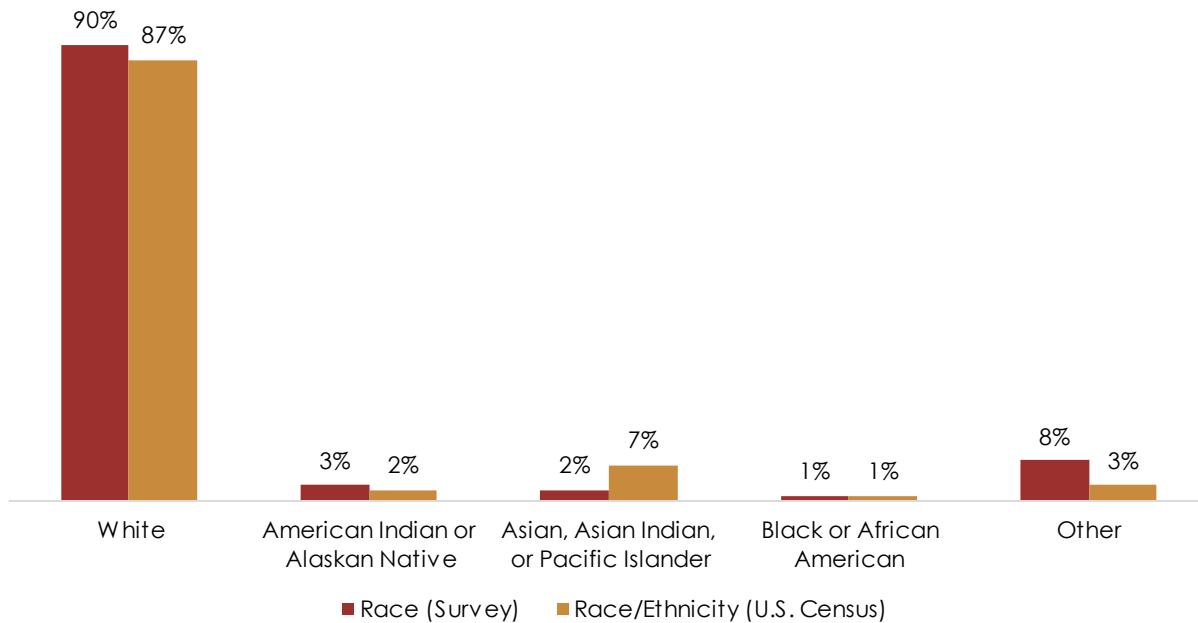
Race/Ethnicity ²	
Hispanic or Latino	18%

Question 22: What is your race? (Mark one or more races to indicate what race you consider yourself to be)

Answered: 395, Skipped: 157

- As shown in Figure 11, most respondents identify as White (90%), followed by Other (8%), American Indian or Alaskan Native (3%), Asian, Asian Indian, or Pacific Islander (2%), and Black or African American (1%). This is representative of the County's demographics for all races in the U.S. Census within 5%.²

Figure 11. Indicated race of survey respondents compared to race of residents from U.S. Census.²



² [U.S. Census Bureau QuickFacts: Los Alamos County, New Mexico \(2022\)](#)

Question 23: In which category is your age?

Answered: 421, Skipped: 131

- Most survey respondents are 55-64 years of age (21%), 65-74 years of age (21%), or 45-54 years of age (20%; See Figure 12). The median age of survey respondents is over 10 years older than the median age of Los Alamos residents, according to the U.S. Census (see Figure 13 and Figure 14).

Figure 13. Age of survey respondents.

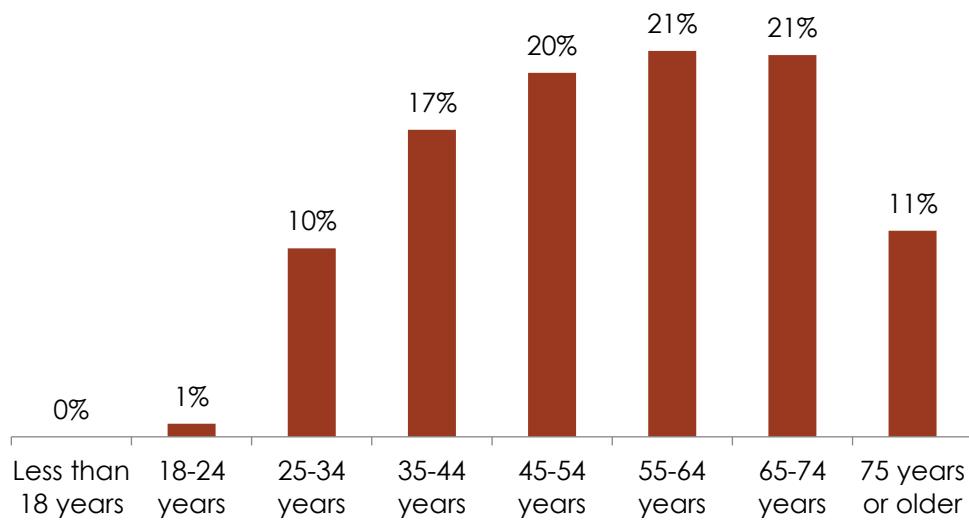
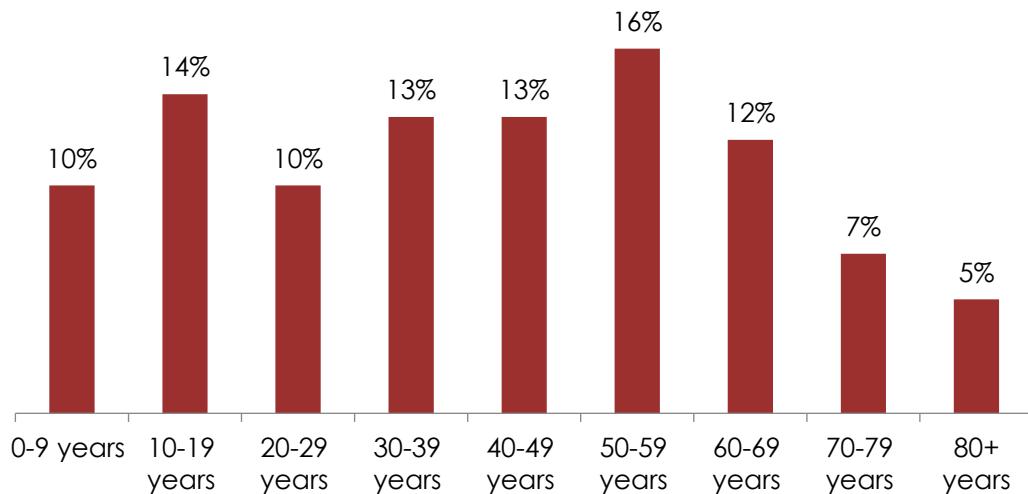


Figure 14. Age of Los Alamos residents (U.S. Census).³



³ [U.S. Census Bureau: American Community Survey 5-year estimates. Los Alamos County, NM \(2021\)](#)

Question 24: How much do you anticipate your household's total income before taxes will be for the current year? (Please include in your total income money from all sources for all persons living in your household).

Answered: 364, Skipped: 188

- Most survey respondents have an annual household income before taxes of over \$100,000 (66%; Figure 15). Compared to the US Census data for the County, survey respondents had a higher median household income.

Figure 15. Household total income of survey respondents compared to U.S. Census.³



Question 25: Which best describes the building you live in?

Answered: 429, Skipped: 123

- Most survey respondents live in a one family house detached from any other houses (83%; See Table 6). The next most common building type for respondents is a building with two or more homes (13%) followed by mobile home (4%). The US Census does not provide data on this question.

Table 6. Building type of survey respondents.

Building type	
One family house detached from any other houses	83%
Building with two or more homes (duplex, townhome, apartment, or condominium)	13%
Mobile home	4%
Other (please specify)	1%

Question 26: Do you rent or own the place where you live?

Answered: 430, Skipped: 122

- Table 7 shows that the vast majority of survey respondents own the place where they live (91%). This rate is significantly higher than the percent of owner-occupied units in Los Alamos County according to the US census (74%; see Table 8).

Table 7. Percent of survey respondents who rent versus own the place where they live.

Rent or own	
Own	91%
Rent	7%
Neither	2%

Table 8. U.S. Census ownership of occupied units.³

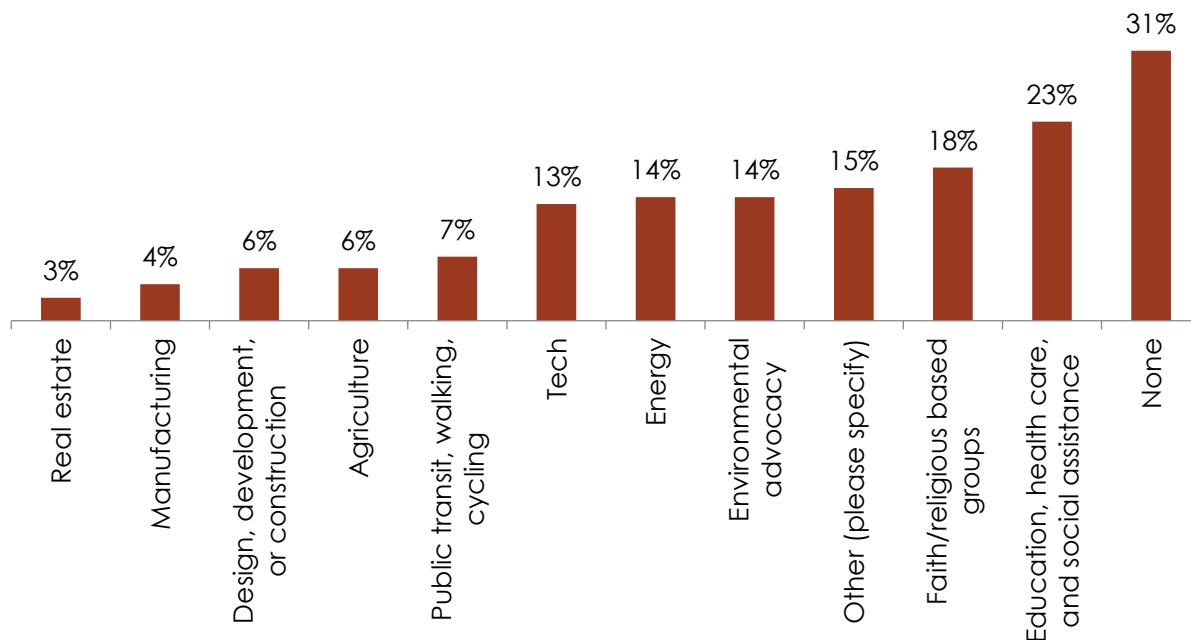
Occupied units²	
Owner occupied	74%
Renter occupied	26%

Question 27: Do you work or volunteer for an organization in any of the following sectors? (Select all that apply)

Answered: 378, Skipped: 174

- Many survey respondents work or volunteer in the education, health care, and social assistance sector (23%). Other popular work sectors of respondents include faith/religious based groups (18%), environmental advocacy (14%), energy (14%), and tech (13%; see Figure 16). Comparable data from the US Census was not available.

Figure 16. Sector of work/volunteer of survey respondents.





LOS ALAMOS
Climate Action
Plan Survey
Summary:
Appendix A

November 2023

APPENDIX A. SURVEY QUESTIONS

Los Alamos County Climate Action Plan: Community Survey

Welcome to the survey for the Los Alamos County Climate Action Plan!

The County of Los Alamos is developing its first ever Climate Action Plan and we need your input!

Thank you for participating in this survey. Your feedback is important. All questions are **optional**, and if desired, responses will remain **anonymous**.

What is a Climate Action Plan?

Global climate change represents an ever-increasing threat to the health and wellbeing of people and the planet. Greenhouse gas (GHG) emissions from human activity are changing our climate in ways that put the Los Alamos community at risk.

A climate action plan (CAP) provides a roadmap for reducing the community's greenhouse gas emissions and preparing the county for unavoidable impacts of climate change. By taking action to reduce emissions and build resilience to climate risks, the county will position itself to be ahead of the curve and protect the health and wellbeing of our residents and economy.

Purpose of this survey

The goal of this survey is to identify community concerns and priorities related to taking action on climate change in Los Alamos County. Your input will inform the direction the County will take to reduce environmental impacts and adapt to climate change.

This survey will take approximately 13 minutes to complete. Your feedback is important to us, thank you for participating!

Note that there will be other opportunities to provide feedback for the Climate Action Plan. To stay informed, visit the Sustainability website: lacnm.com/sustainability. Results from this survey will be shared at this site within a month after the survey close date.

Section 1: Introduction

Tell us a bit about you and your perspectives on climate change.

1) Do you live or work in Los Alamos County?

- a) Live
- b) Work
- c) Both
- d) Neither
- e) Other (please specify): _____

2) How did you hear about this survey? Select all that apply.

- a) Friend/family/colleague
- b) Community organization or event
- c) Los Alamos County website or email
- d) Social media
- e) Other (please specify): _____

3) How much do you know about climate change?

- a) I have never heard of it.
- b) I know a little about it.
- c) I know a moderate amount about it.
- d) I know a lot about it.

4) How concerned are you about the following climate change impacts? Please indicate your level of concern for each.

	Not at all concerned	Not too concerned	Somewhat concerned	Very concerned	Extremely concerned
Extreme temperatures & heat waves					
Wildfires & smoky air					
Extreme precipitation & flooding					
Drought & water supply					

5) Are there any other climate change impacts that you are VERY CONCERNED about?

6) Please rate your level of agreement with the following statements. For each statement, please select the option that best matches your view.

<i>Taking action on climate change in Los Alamos County...</i>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Is good for business in Los Alamos County.					
Can help me save money and resources.					
Is good for the health and livability of my community.					
Protects our environment and natural resources.					

7) What other benefits can be realized from taking action on climate change in Los Alamos?

Section 2: Vision & Targets

The following questions will help the County understand the community's vision for the future of Los Alamos County with respect to environmental stewardship.

8) What would a sustainable and resilient Los Alamos look like?

- 9) The state of New Mexico has a goal to reduce greenhouse gas emissions 45% by 2030 (compared to 2005 baseline levels). This ambitious goal will require implementing new regulations and programs across major emissions sectors, including transportation, buildings (electricity and natural gas), and solid waste.**

Compared to the state target, Los Alamos County's target should be....

- a) Less ambitious** – Los Alamos County should encourage its community to take climate action primarily through voluntary or incentive-based actions.
- b) On par** – Los Alamos County should keep pace with the state on climate action and policy. Keeping pace would require a mix of voluntary actions, incentive programs, and regulations or mandates.
- c) More ambitious** – Los Alamos County should be a leader in climate action. Being a leader would require expanded voluntary and incentive programs and regulatory measures and would require a larger cost investment.
- d) I'm not sure** – I need more information to decide.
- e) Take no action** – please elaborate below.

- 10) Please elaborate on why you believe this should be Los Alamos County's target.**

Section 3: Climate Strategies

11) What TOP THREE STRATEGIES do you think the Los Alamos Climate Action Plan should focus on? Please choose up to three. Options were randomized.

- Educate the community on the importance of reducing our carbon footprint and provide solutions on how.
- Make buildings in the community more energy efficient.
- Transition to clean, carbon free energy sources (e.g., solar, wind, geothermal).
- Shift to alternative transportation modes (walking, bicycling, transit).
- Transition to electric and alternative fuel vehicles, such as EVs and biodiesel.
- Reduce water consumption and improve water management.
- Expand and protect green spaces and natural ecosystems.
- Reduce emissions from the consumption of goods and shift to more sustainable goods and services.
- Reduce communitywide waste generation.
- Increase community reuse, recycling, and composting.
- Improve community resilience to climate impacts, especially for vulnerable communities, such as through emergency shelters and support services.
- Increase community education and awareness of climate change impacts and solutions.
- Reduce emissions from County government operations, such as from County buildings and vehicles.
- Other: _____

12) What do you see as significant BARRIERS or CHALLENGES to implementing these strategies?

13) Do you have any additional feedback on these strategies? Are there any key strategies that you think are missing or actions you would like to see included in this plan?

14) What are some things you or your household/business HAVE DONE or would be WILLING TO DO to support climate action? Select all that apply. Options were randomized.

- a) Drive less and increase alternative modes of transportation, such as bus, walking, or bicycling.
- b) Purchase an electric or hybrid plug-in vehicle.
- c) Invest in solar panels for your home or business.
- d) Eat more fish, poultry, and plant-based meals.
- e) Waste less food.
- f) Install an efficient heat pump water heater or HVAC system.
- g) Use sustainable yard care practices such as by planting native or drought-tolerant plants or adding water catchment systems.

- h) Purchase environmentally friendly products (e.g., items with recycled content or less toxic chemicals).
- i) Reduce your use of single-use items (plastics and napkins).
- j) Buy second-hand materials such as clothing and furniture.
- k) Participate in a renewable energy program through your local utility.
- l) Right-size your vehicle to a more fuel-efficient vehicle.
- m) Renovate your home/business to be more energy or water efficient.
- n) Other suggestions: _____

Section 4: Staying Involved

15) **Can we email you about additional engagement opportunities for the Climate Action Plan? (You will receive approximately one email per month.)**

- i) Yes
- ii) No

If yes:

16) **Email:** _____

17) **Name:** _____

Section 5: Optional demographic questions

The following questions help us understand the profile of survey participants and supports our effort to make this process as comprehensive and inclusive as possible. These questions are optional and anonymous.

18) **What is your zip code?** _____

19) **What is your gender?**

- a) Woman
- b) Man
- c) Identify in another way

20) **If you identify in another way, how would you describe your gender?** *Only show if respondents chose "Identify in another way" from question 19.*

- a) Agender/I don't identify with any gender
- b) Genderqueer/gender fluid
- c) Non-binary
- d) Transgender man
- e) Transgender woman
- f) Two-spirit
- g) I identify in another way

21) **Are you Spanish, Hispanic, or Latino?**

- a) No, not Spanish, Hispanic, or Latino.
- b) Yes, I consider myself to be Spanish, Hispanic, or Latino.

22) **What is your race? (Mark one or more races to indicate what race you consider yourself to be.)**

- a) American Indian or Alaskan Native
- b) Asian, Asian Indian, or Pacific Islander
- c) Black or African American
- d) White
- e) Other

23) **In which category is your age?**

- a) 18-24 years
- b) 25-34 years
- c) 35-44 years
- d) 45-54 years
- e) 55-64 years
- f) 65-74 years
- g) 75 years or older

24) **How much do you anticipate your household's total income before taxes will be for the current year? (Please include in your total income money from all sources for all persons living in your household.)**

- a) Less than \$25,000
- b) \$25,000 to \$49,999

- c) \$50,000 to \$74,999
- d) \$75,000 to \$99,999
- e) \$100,000 to \$149,000
- f) \$150,000 or more

25) Which best describes the building you live in?

- a) One family house detached from any other houses
- b) Building with two or more homes (duplex, townhome, apartment, or condominium)
- c) Mobile home
- d) Other

26) Do you rent or own the place where you live?

- a) Rent
- b) Own
- c) Neither (please specify): _____

27) Do you work or volunteer for an organization in any of the following sectors? *Select all that apply.*

- a) Energy
- b) Manufacturing
- c) Education, health care, and social assistance
- d) Tech
- e) Faith/religious based groups
- f) Environmental advocacy
- g) Public transit, walking, cycling
- h) Design, development, or construction
- i) Real estate
- j) Agriculture
- k) None
- l) Other (please specify): _____

Thank you for completing this survey! We hope to see you at a future event. Learn more at lacnm.com/sustainability.



LOS ALAMOS
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Appendix B

November 2023

APPENDIX B. OPEN-ENDED RESPONSES

This appendix includes all open-ended survey responses verbatim. These responses do not represent the views of the County.

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Question 2: How did you hear about this survey? Select all that apply.

Other (please specify)

- LA Daily Reporter
- Newspaper
- Google News
- Los Alamos Reporter
- newspaper
- LA Reporter website
- Daily Post
- Los Alamos Reporter
- LA Reporter
- media
- losalamosreporter
- Newspaper
- Daily Post and county post card.
- Daily Post
- County email
- Daily Post
- LA daily post
- Los Alamos Reporter
- LA Reporter
- Chamber of Commerce email
- Los Alamos Reporter
- Internet
- La daily post
- Los Alamos Reporter
- LA Daily Post
- LA Daily Post
- web search
- LA Reporter
- Los alamos Reporter
- sue Barnes primarily through her emails urging friend & community to respond to Surrey
- Paper
- LA Daily Post
- county e-mail
- SENT BY EMPLOYEEER
- email
- Los Alamos Daily Post advertising
- Daily Post ad

- PEEC
- in connection with a movie on climate change, at PEEC
- losalamosprogress.com
- LosAlamosReporter.com
- lapost
- Employee appreciation event
- ad placed in daily post on laptop.
- Discovered online
- Newspaper
- LA Daily Post Ad
- Los Alamos Post
- newspaper
- Online newspaper
- PEEC This Week
- received email
- LA daily post
- LA Daily Post
- los alamos reporter
- The Los Alamos Reporter
- daily post
- Los Alamos Reporter Article
- Los Alamos Reporter Website
- Local newspaper
- I'm on the ESB
- Google local news
- Los alamos reporter
- online news
- LosAlamosReporter.com
- LA Reporter
- Los Alamos Reporter
- LA Reporter
- LA Reporter
- los alamos reporter
- Los Alamos Reporter
- Reporter
- Los Alamos Reporter
- Los Alamos Reporter
- PEEC newsletter
- involved with sustainability efforts at county level
- LA Daily Post

- local papers
- In
- la daily post article
- Daily Post story
- Los Alamos Daily Post newspaper
- Friend
- Daily post
- LA Daily Post
- Spies deep within county hierarchy
- County Council meeting, Daily Post
- Watching County Council meetings
- LA online newspaper
- The Daily Post
- The Post
- Nextdoor email
- LADaily Post
- News article
- LA Daily Post
- Newspaper
- Ladailymail
- LA Daily Post
- Dailypost
- Daily Post
- LA Daily Post
- Facebook
- On line news article
- LA Daily Post
- Newspaper
- Daily post
- Daily post
- LA Daily Post, County post on NextDoor
- LA Daily Post
- Nextdoor post
- Online
- The Nextdoor app
- Los Alamos Daily Post
- Daily post
- Paper

Question 5: Are there any other climate change impacts that you are **VERY CONCERNED about? (Open response)**

- Impacts on our wildlife
- None
- economic impacts to supply/food chain, food insecurity, rise in violence in the face of famine and drought (more war creates instability, decline in biodiversity, increased epidemics/pandemics
- None.
- Supply chain disruption, food insecurity, higher rates of epidemics and pandemics, violence and instability in regions affected most by drought and famine, mass immigration and the strain that puts on an already strained system, vast biodiversity losses
- Geo Engineering
- Yes, weather modification, Chem trails are more detrimental to the environment than any of the bologna that Al Gore and his cronies have fabricated to make millions \$\$\$!! Stop the insanity and educate yourselves! (And I'm not referring to the bought and paid for studies, expand your minds!)
- impact on boidiversity
- Global population migration, famine, etc.
- Flooding, Extreme Weather events, Mass Extinction events
- These are not climate change impacts.
- None
- Extinction of wildlife and insects, famine due to difficulty growing food - on a larger global scale
- Destroying the environment with lithium mining for EVs, destroying the landscape and birds of prey with wind farms, and lying to people about EV "efficiency ". They are coal powered cars that use over 130% of the energy actually delivered to the batteries....
- Yes, "climate change" doesn't exist. I'm **VERY** concerned quality of life will be significantly impacted from people creating policy around something that doesn't exist.
- None
- No, this is a waste of taxpayer dollars.
- Crop failures, rioting, looting. The usual end of the world stuff.
- Destruction of our economy and way of life due to government regulation of fossil fuels
- Ozone layer and air quality (outside of smoke and wildfires)
- About the too little considered impacts of current and growing overpopulation on climate change and all its interconnected problems...
- Effects on the ecosystems worldwide.
- I do believe in climate change, but there are also many other issues confronting the County and its citizens it should be concerned with. The County Councilors should consider health, safety and welfare of the entire county, not just the dozen or so that are yelling the loudest.
- Misinformation. People do not believe it's a threat.
- Ripple effects of food insecurity
- Ocean temperatures and melting ice. Hurricanes and costal storms.
- Electrical grid being over taxed due to full electric vehicles.

- Hype
- Economic damage done by climate extremists.
- Impacts on food supply
- No
- In the long run, sea-level rise and ocean acidification
- County has an excessive amount of fleet vehicles - many sit unmoved for days at a time. Many of them are in Smith's parking lot multiple times per day. Great Job reducing climate change contributions.
- electricity reliability
- I am concerned about the water supply but the problem is due to overuse and bad planning, not climate change.
- Impacts on wildlife, in particular plant growth and its connection to migrating birds, pollinators, and other animals, as well as food production.
- The above items are natural and not a result of man.
- Light pollution and it's impact on human and wildlife health through the alteration of natural environments resulting in climate impacts.
- Displaced people and regions of the world becoming uninhabitable
- Wildfires due to drought, diminishing snowpack.
- I am very concerned we will implement extreme life changing measures that will have little to no impact on what seems like an inevitable change in the climate.
- Severe weather (thunderstorms, wind, blizzards)
- Displaced wildlife
- Loss of species - plants, animals, birds, insects, etc.
- The adjustments in the humidity level near the ground and the water levels in the atmosphere in areas of the Northwest which will eventually cause a rainier climate here.
- No
- the surge of waste created by broken windmills and solar panels
- Sea level rise. Ocean heat. Ocean circulation failure.
- N/A
- No. I am concerned that the county is using tax payers money on this issue.
- Effects on wildlife.
- Too many to list here.
- No
- I am not concerned.
- Biodiversity loss!
- Glacial melt and rising sea levels and sea temps
- Food security and biodiversity
- I'm worried about native animals and plants not surviving climate changes.
- The costs associated with preparing for climate change impacts
- no
- Affect on wildlife and food production.

- how is the infrastructure going to handle climate change effects when at times it can't handle a normal day?
- I feel that we should also not ignore the horrendous pollution that can be seen between Los Alamos and the Sangre de Cristo mountains every work day. The mountains are obscured by pollution every week day morning.
- all of the flora and fauna in our world are impacted by climate change, and the damage to and loss of biodiversity is a huge problem for the planets health.
- Tipping the balance of nature with the loss of the eco-system as we know it.
- Energy Independence
- Deforestation and species loss, both plant and animal.
- No but lots that I am EXTREMELY CONCERNED about.
- yes
- Rising water levels near the coasts. This will concentrate populations more inland leading to overcrowding. There will also be more refugees seeking escape from climate change impacts and there will be no room or welcome for them.
- crop production, changing needs of given changing climates; increased human-wildlife interactions as drought impacts their food supply
- I am very concerned that we are using water as though we had an abundance of it; the little rains we have gotten are not enough to sustain us. Being that our electric production is based on water, we should probably start considering a back up plan (solar, wind). I am also concerned about the rise in temperature the affect that has on not just us but also plants and animals.
- Sea level rising.
- Lack of snowfall
- food security income inequality
- No
- Greenhouse gas emissions due to factory farming and livestock. Livestock production—primarily cows—produce 14.5 percent of global greenhouse gas emissions. The majority of that is in the form of methane, a potent greenhouse gas that is a natural byproduct of how some livestock process food.
- The waste of money put into trying to change our dynamic world climate environment which is always changing.
- Climate Migration and Infrastructure (or lack thereof)
- NO
- Loss of species, particularly insects and birds, but all life is being impacted.
- Loss of species, especially birds and insects.
- The biodiversity collapse
- Influx of refugees from flooded areas
- I am concerned about aridification, especially living in the Southwest.
- Climate refugees and resulting civil & global conflicts and destabilization due to mass immigration & people's reactions to that.
- Extreme winds
- National disasters that stress our resources
- Wildlife impacts

- Disruption of food supply and other global impacts, especially to developing countries.
- no
- Wildlife/plants extinction
- I'm concerned with the County wasting all this time and money on these surveys.
- None whatsoever
- Yes, overreacting/regulating ourselves over this ridiculous and controversial subject!
- Over reaction that results in unintended consequences
- The extreme variations of the weather from year to the next. Low water supply, what does that mean for future generations?
- air quality, 3rd world nations who suffer most and try to immigrate, but there is no where to go
- Effects on wildlife populations—living more with wildlife, changing zones of habitat, and habitat and species loss.
- Pollution in the oceans. Death of animal species.
- Fresh water supplies
- Destruction of native habitats
- Activists making a mountain out of nothing. Climate has always been "changing" and man has very little effect on it.
- habitat loss and extinctions caused by all these factors
- impact on food production, impact on the ecosystem (extinctions)
- migration, instability, and conflicts.
- It seems to me wildfires are caused by drought and lightning. So this may be a subset of the primary changes.
- the loss of coral reefs due to carbonic acid going into our ocean, loss of biodiversity, and the need to change our fuel sources now. etc
- Drought
- socio-economic disparities; geographic violent extremism linked to climate change (ie crime); the impact of climate change on our planet's animals
- The population is growing too fast to keep up with cleaning up the earth, and helping make the planet warmer with using natural resources, including body heat, 98.6 degrees.
- Yes. The effect Solar and wind farms have on the climate. They each change the weather patterns greatly for little benefit at a very high cost.
- Winter effects (More than usual snow)
- No
- Plastic Use-Not only does this get into nature and effect wildlife, it takes fossil fuels to create, creates microplastics with unknown health risks, and doesn't decompose. We need to pressure our Smiths to provide a large selection of bulk items where consumers can bring in their own containers and fill up on groceries without bringing heaps of plastic back home with them. Also, Animal Agriculture-which is one of the largest contributors to deforestation, ocean deadzones, (exceeds more GHG emissions than the entire transportation sector combined), and is incredibly resource intensive. -We need to educate our community on this issue, support more plantbased eating within our restaurants (create incentives for restaurants to give fully plant-based options), and make plant foods more accessible by creating community food farms in areas we aren't using-like abandoned buildings/parking lots that haven't been used in years. -If you'd like

help in coordinating this-I'd love to be a part of this. My M.S. is in Sustainability and I'm a public speaker for sustainable food systems.

- Unpredictable weather (i.e. swings of deep cold and very hot, long unexpected droughts) make growing plants and especially vegetables in the region much more difficult without creating artificial environments to protect what's growing.
- Lack of housing will destroy this community before any climate event will impact us.
- Impact on wildlife and our children's futures
- Lying scientists who are paid by leftist foundations to discern climate change no matter what the weather. Those who cannot predict the weather two weeks from now but insist they know what will happen fifty years from now.
- Less about climate and more to do with the fact that there doesn't seem to be any kind of enforcement for people who "roll coal."
- The long-term modeling suggests that extreme climate change will drive extreme weather, mostly heat and drought for the Los Alamos area. Demands for water and power for the current population will continue to increase while LAC simultaneously seeks to increase the population of LAC.
- Dryness in Los Alamos area
- Pollution
- No
- the stupidity of our govts to believe this climate change garbage!
- No
- plastics in the ocean
- No
- Climate change is not new and has nothing to do with humans
- I am very concerned that we are over reacting to this issue. If we try to do things quickly, like in the next 10 years we may drive the world into a deep depression which will set civilization back 50 years. The Cato institute has studied this problem and shown that it is a manageable problem.
- Ultimate inability for earth to sustain itself and us.
- food supply
- the lack of reliable, unbiased information fed to the public.
- Increasing severity of storms and increasing risk where homes are located. Ability for communities to be able to plan and mitigate risks associated with climate change. Our dependency on fossil fuels is also concerning. Technology for using electric cars and solar power is getting better, but it is still somewhat specialized, so I think it makes people hesitant to use it because if something goes wrong with these, they would not be able to fix it themselves, which I think is important to people, not to have to wait for a repair person. While they are waiting for the repair they would be out of power or a vehicle.
- climate-forced migration agricultural collapse
- I am very concerned how this survey catastrophizes climate change to push a zero-carbon energy policy that would cripple citizens' supply to affordable and reliable energy. I am also very concerned how this survey ignores that despite rising CO2 and temperature levels over the past 100 years, there have been fewer climate-related deaths (e.g. due to heat, fire, floods, and food insecurity) thanks to the climate mastery solutions that fossil fuels provide affordably and

reliably. Zero carbon emissions is a novel goal to have, but not at the expense of the world's most vulnerable populations.

- Melting glaciers and climate change effects on our oceans,
- Forest fires!
- Pests like bark beetle
- Reliability of food supply
- Climate refugee crisis
- droughts and forest fires
- NO, Stop wasting county money on this nonsense
- No
- Lack of forest care leaving too much fuel on the ground and forest fires
- Possible heat damage to tropical forests
- Electricity impacts due to increase in air conditioning usage and outages due to impacts from climate change and impacts from an increase in air conditioning usage during heat waves (like with Texas).
- All of the above.
- being a wedge for polarization and distrust in the scientific community
- Animal and plant extinctions Affects on food production
- The global cost associated with climate change.
- Effect on local ecological systems
- Cost of goods and services
- Extremely concerned with wildlife and ecosystem destruction that is caused by drought and temperature extremes. Concerned that Los Alamos's vision is to bring in more people through housing, destruction of open spaces, more water usage, impact on wildlife, and ecosystems.
- I just want to point out that it's absurd to ask if people are concerned about EXTREME anything. Obviously I am concerned about extreme things. I'm also deeply concerned about Extreme Sports, Extreme Golf, and Extreme Wrestling.
- climate refugees, arable land, extinctions, sociopolitical conflict
- Social collapse, war
- Adverse health effects from pollen or invasive insects.
- loss of biodiversity
- Investing in expensive "green" energy when nuclear is much cheaper and more "green"
- Governments, local, state, and federal, spending huge amounts of time, money, and governance attention addressing climate goals which they can have little to no tangible effect on. All while resulting in a increase in human suffering and being a welcome distraction from the real social and societal needs in our community that would greatly benefit from the time, attention, and funding of our government.
- All
- No
- Biodiversity loss
- Where do I start?! Wildlife habitat/oceans, endangered species, world hunger issues/food supply
- bomb cyclones and similar wind events

- Cost of change to meet perceived needs with no understanding if there are results.
- Loss of biodiversity
- effect on people, especially those in poor, undeveloped nations who bear the brunt of OUR actions that are responsible for most of climate change
- Our soils microbial background needs to be repaired.
- Increased transmission of zoonotic diseases and pandemics.
- Ecosystem destruction and socio-political impacts (migration, conflict driven by resource scarcity)
- loss of national energy independence, loss of national security
- Economic
- Downstream problems such as crop loss.
- Unpredictable storms
- Impacts on my life by extremist climate activists that are forcing unnecessary changes in the name of climate change.
- All.
- Not sure if the survey is for local concerns or global concerns-- but locally I'm also concerned about resources being spent on disaster preparation because we didn't do the right thing in the first place to help solve the root causes of climate change and its damaging impacts.
- I'm concerned about the financial aspects of a hurried rush to abandon fossil fuels and about the potential destabilization of the electric grid as more and more intermittent sources are added.
- Keeping my tax dollars working for utilities and education. Climate change should not be handled at the local level.
- Loss of habitat, too much concrete, pesticides, dangerous chemicals that lead to decline of pollinators.
- Agriculture / food supply; increase in migration causing upheaval and political / social unrest; economic opportunity costs: spending \$ on resiliency and damage repair vs. better causes for that \$\$.
- Population of the world
- Ice sheets and glaciers melting, sea level rise and ENSO shifts, esp for Pacific Is nations; rainforest drought and habitat convergence
- Dying trees and other vegetation.
- How trying to control climate change impacts on a regional level ignores the contributions made by the government, the military, and corporations towards climate insecurity and puts the fiscal and moral onus on individual citizens whose contributions are nothing in comparison.
- I am very concerned about the lack of common sense forest management when it comes to fire prevention. Also very concerned about the out growth of LANL by TRIAD and the impact it is having.
- chemical pollution into the environment, contaminants such as PCBs PFAS, metals,
- extinction of many species of plants and animals
- Biodiversity and ecological impacts - deforestation, extinction events, desertification
- disease spread, coastal impacts, geoengineering, regional instability
- The above items are not climate, they are weather related. I am concerned about the "climate crisis" agenda being forced on people.

- Leaders pushing climate crisis at the expense of quality of life for lower income populace. Taking more affordable sources of energy away as a choice.
- No
- Authoritarianism
- Over zealous sustainability goals and a focus on CO2 when water is the problem.
- No, I am a published scientist, I know the field, their predictions are BS
- Food shortages; water shortages, disasters and recovery
- I'm concerned that we are going to spend millions in tax dollars over something we have almost no control over. I am VERY CONCERNED about that one.
- None climate change is a lie pushed by the liberal agenda.
- No
- I am concerned about the impact of forcing everyone to adopt "green" technology will have. Windmills, solar panels & large batteries for cars/trucks cannot be recycled. I'm also concerned that we're supporting slave/child labor with all of this technology.
- Agricultural Impacts and low-income community health.
- Impacts on native vegetation
- I am concerned about the fear mongering regarding "climate change." The climate is always changing. Statements claiming the hottest summer ever are over-statement. I recall even hotter weather in the 50s & 60s.
- No
- Disease and pestilence, increased illnesses and spread of viruses. Electrification of vehicles without clean energy. Blackouts from overburdening the electric grid. Lack of water resources and other precious resources.
- None
- Climate change is a hoax. The county has been duped by alarmist hoax.
- Electricity
- Overpopulation
- No
- Extinction of species, climate equity
- Invasive plants increasing our fire danger and using valuable water needed for indigenous plants and animals.
- Man's stupidity to combat them and impoverishing the people
- Hunga Tonga-Hunga Ha'apai affecting our weather and producing high winds for at least the next 5 years.
- This survey assumes these things happen because of climate change.
- While not strictly a "climate" issue, I'm also concerned about things like excessive night time lighting and other manmade impacts that affect wildlife, and the ecosystem in and around LA county.
- No
- None.
- Mass migrations of people from affected areas; resulting conflict and violence
- Bad Information from the press and Politicians

- Leaders destroying the economy and wasting money on things that will have limited effect or impact, like the Los Alamos Climate Action Plan
- Wasting money on fad "solutions"
- Well not here of course but sea level rise is huge.
- Ignorance by all the fools that are so egotistical that they believe humans can impact climate to the degree they say
- Not sure.
- Not being able to water around my house to have shade from the sun.
- Massive spending on climate detracts from real community needs
- The amount of money that will be spent combatting something we clearly don't understand and the damage that spending will do to future generations.
- None
- I'm concerned that environmentalist nut jobs are going to drag us back to the dark ages because of false climate change hysteria.
- Allergies becoming worse with heat and dryness. Natural disasters affecting loved ones. Loss of resources for wildlife. Bird population dying. Increases in disease.
- Rising ocean temperatures.
- No.
- Climate always changes and humans have not and are not now changing it. It is all a hoax to control our lives.
- No
- plant growth. This extreme heat has wreaked havoc on crops this summer. If we can't feed humanity, we might as well hang it up.

Question 7: What other benefits can be realized from taking action on climate change in Los Alamos? (Open response)

- Makes LA more liveable.
- 0
- economic benefits from ecotourism, dark skies benefitting wildlife and stargazing, becoming a leader in climate action and sparking far-reaching change
- economic benefits from "ecotourism," less light pollution --> better stargazing and animal sightings, becoming a model city that can spark greater change throughout New Mexican communities and therefore kickstarting New Mexico as a state to watch in the growing green economy
- NONE
- None
- Providing a future for our children
- We don't need or want the government to control the residents of Los Alamos. We can watch make or own choices about how we live.
- None
- Accountability

- Every community will have to take action at some point. Los Alamos should be prompt in accepting reality.
- Buying nuclear power is the single best thing to be done. Next is subsidizing solar on homes (for backup power). Next is subsidizing upgrades to the dilapidated older housing, like insulation and window replacement.
- None. Fossil fuels are plentiful in this country and it would lower heating and gas costs for everyone if we stopped shipping our oil to other countries. Turning everything electric will only overwhelm the electric grid and increase instances of power failures.
- None
- Prevent loss of trees and summer heat from making Los Alamos a much less pleasant place to live and work.
- Both physical and mental health are improved in a sustainable community.
- We can be part of the solution or part of the problem. Los Alamos has the opportunity and the ability to be on the forefront of world change.
- None. Literally none. Do something useful or reduce taxes so people can afford to live in this insane town.
- Helping avert apocalypse, perhaps.
- Every little bit counts. If every community, town, city, county, state and nation took action, it would improve our world and Los Alamos.
- We may ease the burden that we are leaving for future generations.
- Los Alamos is known for science, and can be a role model for other communities.
- Satisfaction that it's the right thing to do.
- Again, the County seems to be run by a dozen or so individuals that yell the loudest, e.g., golfers, property maintenance codes, etc., and not that the vast majority want health, safety and welfare first and foremost. Better roads, schools, health care, even hold Smith's to a level of service as a monopoly in the community.
- Education of citizens
- Only to make brainwashed people feel like they are doing something meaningful
- You can't change the weather
- None
- Anything that we implement and see success from will serve as an example to other counties across the state, and possibly the country.
- None
- We can set an example of climate action for our nation!
- Being a good global citizen
- County could spend less money on nonsense and waste like the Chinese Christmas lights that they replace each year on the trees at Ashley Pond.
- reducing wildfire risk to community, LANL and neighboring communities
- We will feel good about ourselves while costing ourselves a lot of money and achieving absolutely nothing.
- It can help us innovate new ways of living and doing business that are healthier for our community. It can also have a greater impact on global issues.
- Benefits those pushing the climate change hoax

- contribution to the global good
- Public assets, such as bicycle lanes and pedestrian trails, as well as public transit to reduce traffic and emissions. Also, Improved forestry management.
- If climate change programs happen to coincide with good environmental practices. The mountains around us could be positively effected by a intelligent tree planting program.
- We are able to continue living on our own planet come 2100.
- It's a political power grab
- None. LA is to small and to remote to make a noticeable deafferents other than putting more unnecessary restrictions or requirements on to residents. Plus spending resources on pre-emptive spending that will still net below zero as the more than half of our community work force comes off the hill. wasteful spending that could go to better tangible use for the community. next your going to ask that the community goes to all electric cars witch our power grid can not handle or never will be able to handle.
- We can preserve and nurture the natural beauty around Los Alamos
- Climate change initiatives in Los Alamos are more costly for the limited number of businesses. Solar panels can help save money if the county subsidizes the installation. The health and livability in this community is excellent.
- Reduce traffic load and accidents.
- N/A
- LAC should be focused on commuter and travel impacts, what environmental damage is being done by housing expansion and the lack of local businesses in the community.
- Beauty and happiness in Los Alamos.
- None. Beyond scope of action capable by a local entity.
- Higher taxes from panic.
- Makes our community more beautiful!
- slowing the use of fossil fuels, decreasing light pollution
- Younger generations respect and a future for them A possibility for wildlife species survival
- We need clean air to breathe. We need trees to breathe and to cool our surrounding areas. We need water to live and to keep the trees alive. This last summer, it was possible to die just by being outside in the full sun in Los Alamos. Without care for our environment, we shall perish too. It is that simple.
- Improve youth mental health
- Set the example so others can follow.
- SAFE
- The continuation of the human species.
- it is good for the planet
- The other day, my family rode our bikes out to the co-op to buy groceries. We enjoyed the sights and fresh air along with the hard work carrying backpacks full of groceries and biking uphill. There are so many action that can be taken, I don't know all but we can come up with a lot together, and the benefits won't be realized until we give them a try. We might even revitalize our town and get more business and living spaces downtown so that we are growing our community.
- While it may be a small impact, it is still an impact. We can maybe slow the progression.
- Save money

- it depends on the type of action taken. Just because people are taking action doesn't mean it is the right action to help a situation.
- LA could become a leader in taking action to combat
- We can add this to LAC accolades and be a role model for leading the country in taking climate change action.
- Waste of time. Adapt.
- Reduction in energy consumption.
- none
- Saves lives.
- Help future generations
- Understanding how climate change impacts us as individuals
- mental health - feeling encouraged rather than discouraged.
- It benefits everyone and everything. If we all contribute, even in small ways, we all win.
- We can be prepared for impacts before they occur which will save the County money, resources and troubles. We can also be a leader in the field which is good for the image and liveability of the County.
- Reduce resources
- Increased community, access to low-carbon transport options, reduced energy costs, support for home electrification, cleaner air, healthier forests. Importantly, taking responsibility for our large carbon footprint (as a very wealthy community) and providing inspiration to other communities to take action.
- stop pushing your agenda on everyone.
- None. The county wastes enough money on needless surveys, consultants and bureaucracy
- Leaving a future for our children.
- save the earth for our children
- Help to preserve the beauty here.
- We all need to be involved in taking care of our resources in reasonable, responsible ways, not extremes one way or the other.
- Earning respect from others by setting an example. Los Alamos has the knowledge and ability to lead by example.
- setting a good example for other places
- Regarding my answers immediately above: all communities should take actions, but what Los Alamos alone does will have no effect globally, since we are all interconnected. In other words, if Los Alamos alone acted, we would still have the same climate change.
- We don't know the impact/improvements until we know the proposals.
- WFH days
- Not sure
- easier to breathe with lower pollen, dust, lab grinding stones at dump with particles blowing in the wind.
- Additional funds would be available for supporting local businesses so we do not have to leave the county for goods and services.

- There is much new construction going on in all parts of Los Alamos. If the new buildings can be built to use less energy for usual results (heat, cooling, lighting...) it will be to both Los Alamos' and the country's benefit (because results can be shared via the Lab).
- Creating an example template for other New Mexico cities to aspire to. - For example, Santa Fe's legal ban on plastic grocery bags has all the specifics and wording to make it easier for other towns to purpose the same law for their own community instead of reinventing the wheel without a law background. Los Alamos can be that for the rest of New Mexico in the environmental and climate action projects we take on. - Other towns will see what we're doing- seeing what works and can incorporate that into their own communities.
- Awareness as to *why* the daily phenomenon are happening makes it easier to adjust to it when it does happen. Making better choices for the long term--where to build, how to build, how to modify what we have already--to take into account the future.
- Cheaper utility bills if the companies that control them give us the savings instead of pocketing them.
- We all should feel a responsibility to minimize climate change; being a part of the effort is the ethical and smart thing to do to plan for the future.
- No climate changes can be affected by residents of Los Alamos. What is, is. Look at Seattle, Portland, San Francisco & Los Angeles's attempts to address the relatively small problems of homelessness. Talk about wasted money! Talk to me again when you have convinced Xi in the CCP and Modhi in India to reduce their pollution. Until then I will consider you nothing but a purple-haired "It" standing next to a 55-gallon drum of KY Jelly. Go Meghan!
- Los Alamos certainly can't fix the problem itself but can provide a model to other small governments that, collectively, might have an impact. Well planned action (local and regional), at any scale, can likely save taxpayers money over the long term and help improve the local and greater environment.
- Longevity for future generations
- county leadership to state and region
- ?
- Overall earth health
- None
- PLANT MORE TREES. Trees can remove GigaTons of CO2 naturally. Re-forest the burned areas of the Cerro Grande & Los Conchas fires.
- I do not see any other benefits. After attending the work shop on supplying electricity to this town I see that the biggest problem we have is getting enough power to the town.
- Setting an example
- It would keep pollution down not only here, but for surrounding areas as well, which benefits everyone, not just one place, since climate change affects everyone. It could serve as a good example for surrounding communities to follow and maybe lead to partnerships between communities to help each other.
- Set an example for other communities
- This is a loaded question. It shows how Los Alamos County has already assumed these actions are benefits. First, LAC would need to understand specifically how climate change impacts/will impact Los Alamos and then share that information with the general public so they can make an informed decision about action.
- A future for my grandsons.

- Save the planet!!!!
- Not sure... You haven't stated what actions will be taken. How do I know the impact of unknown actions?
- Please Stop
- None, it is a huge waste of resources and tax payer dollars.
- Good publicity of our actions attracts visitors = tourism.
- Minimize future litigation
- Given that this is a global problem, anything done in Los Alamos other than by the Laboratory has very impact locally.
- This is a huge cost. The County is already an extremely expensive place to live, some of the proposed actions will further the wealth divide in this County and make it more difficult for the poor to live here.
- Longevity of the community and teaching resource stewardship.
- As a science community, we have the opportunity to pioneer community action that other communities can emulate.
- It is the right thing to do, regardless of how small our contribution may be.
- Regarding question 6, it depends on what 'action' the county is planning to take. This is a stupid question!
- An even more beautiful and livable city and county
- I do not see any benefit
- This question is asking for confirmation of what you're pre-planning to do and is deeply dishonest in a survey.
- None
- Collective action can bring us together as a community.
- community engagement
- make Los Alamos a place that people want to move to
- Depends what it is
- more beautiful landscape; healthier atmosphere; less worry about high temperatures; less need for air conditioning (though we will finally get a heat pump); return to regular monsoons (though we can't do that alone) and more winter snow
- Creating a sustainable public transportation system that will reduce cars on the roads will also help with commuting and congestion.
- We are uniquely positioned to take a leadership role as a small community with access to internationally recognized research. By taking on a leadership role, this will benefit Los Alamos's national and international reputation.
- Even though a very small effect in the overall climate change picture, is the right thing to do, and may, if observed by other communities, encourage others to follow our footsteps.
- decline in standard of living, loss of energy independence, unnecessary added costs for citizens,
- Depends on the types of actions taken. Right now some people think it's a made up problem, but perhaps the county can help change that. Also, it's hard to know what to do as individuals and the county might provide some guidance in that regard.
- Healthier community

- What Los Alamos County does or doesn't do will make absolutely no difference in affecting climate other make people feel virtuous.
- Clean air
- Seems ridiculous for this tiny town to think it will change the course by pretending to think it can make a difference in the phenomenon of climate change.
- It is a waste of my tax money. Please spend our taxes in ways to reduce our cost of living (updating utilities) in this crazy expensive community. The other thing you could spend it on is reducing the building department burden so that we can have restaurants and affordable remodels
- Children might want to live here after they grow up.
- Recognition as a leader in being on the right side of history; recognition as a leader in following science; reduced traffic noise and congestion; cleaner air; rather than spending \$ on resiliency and rebuilding from storm damage, spend that \$ on infrastructure improvements, schools, parks, social services, arts, etc.
- NA this is a global issue and primary offenders are not working on this
- Optics - it is a national black eye for nukes, doing good process for CC will hep
- Healthy planet fitness future generations
- The education of our school aged children who will eventually come into power and actually force change on a higher level to have an efficient impact on the problem.
- Cleaner air by down sizing LANL. Cleaner air by improved forest management.
- Support/promote through usage of emerging technologies/materials, equipment that are not carbon-intensive in operations - facilities, trucks, materials
- Helps regional, national, and global impacts
- preparedness
- Taking away cheaper sources of energy from a rural state is not taking into consideration the poverty level of our population.
- You are going to make energy supply less reliable and more expensive.
- I'm suspicious of the measures the county has for the purpose, and the definition of concern the county uses, or it's motivation behind this interest.
- Thugs get even more control. I'm not interested in this religion. This is a waste of time and money. Focus on eliminating corruption in the county government.
- Understanding & empathy for parts of the world impacted to a greater extent than we are locally. Doing our part to mitigate a global problem. Setting an example & being a role model for other communities.
- None. It just wastes money.
- None
- Getting our planet back
- None
- None. LAC wasting time and taxpayer dollars on this is wrong.
- None
- There are no other benefits to this. It's a boondoggle. We will spend unhealthy amounts of money for little to no return on the investment

- Can make Los Alamos a leader in the country for Green living, Green infrastructure, and a much-needed social /cultural shift to sustainability as a baseline for our future.
- Take action on the number of one-person-per-car commuters. That traffic passes my neighborhood, making it impossible at times to be out in my yard, due to the fumes and odors from traffic. Make it too expensive to drive here; lab workers can take the commuter busses offered. Take action, or living in this small mountain community will become unpalatable.
- It is misleading to say that money can be saved when many of the actions taken end up costing consumers more, ie, energy—electricity, natural gas, gasoline, etc.
- None
- Improved sense of community by promoting local community gardens. Improved health and economics by promoting locally grown agriculture. Independence from fossil fuels by introducing micro grids and roof top solar. Improve health by introducing independent bicycle lanes all across the community.
- None
- Human caused climate change is a hoax. My concern is how much tax money will be wasted trying to achieve unreachable goals. For the love people, CARBON IS NATURAL AND NOT HARMFUL!!!
- None
- We will have somewhere to live
- Be a model and teaching community for those who visit.
- Man's inability to do anything at all about it!
- None. Climate change is a natural phenomenon that us humans cannot make a meaningful impact on. Any proposed "feel good" laws/updates to codes will only make living more expensive in Los Alamos county.
- Any impact Los Alamos or our nation does is moot in light of China's impact.
- Will be seen as progressive community
- Taking action can involve small changes in behavior that are beneficial beyond only contributing to climate change, being more efficient, making choices and using technologies that lead to better long term outcomes on multiple metrics aside from the four categories listed in question 4, for example.
- None
- none.
- Incentive to keep people living here and reinvesting in the community rather than being so transient. Could help with transportation congestion and pollution due to so many cars commuting if we had other climate friendly transit options (More housing in LA that is new and green; more buses from Santa Fe and abq)
- no benefits just cost
- Nothing will benefit the community directly as our impact is minimal and the return on investment is not proven. Making the local open space more bio diverse by controlling the deer population would have greater impact than a climate action plan
- Los Alamos County's impact is too small to make an overall difference, don't waste money on this.

- If done correctly, climate action can help alleviate the effects of wealth inequality. Climate change tends to impact low-income people more than higher earners, and many of the actions can also disproportionately benefit lower-income individuals (e.g. better public transit).
- No benefits except taking money from the foolish masses
- The feeling of doing the right thing, even if it does cost us.
- Nothing, you already screws this county up enough. Stop making stupid rules. Maybe people could fix up their houses and afford to water yards if the county wasn't busy trying to take all of our money.
- None
- None. Come on, we are a little high tech West Virginia Coal Town in NM. What ever we do will cost citizens more, reduce their freedom only to have a feel good action for a few people.
- None. Only negative results can be realized. Climate alarmism is total fiction.
- Draw in new business. Get rid of old businesses or building owners that don't want to change. Make Los Alamos a city of the future. Have Los Alamos be an example to others. Make us proud to live here.
- If Los Alamos County gets involved and is even slightly successful, surrounding counties will follow suit.

Question 8: What would a sustainable and resilient Los Alamos look like? (Open response)

- Less building of new but using available buildings for apartments etc like the old C and B building
- 0
- solar panels on every county - owned building enhancing biodiversity through the expansion of green space and strict regulation on the worst invasive species present in town constant communication within the community, encouraged by the county, to ensure positive change continues to reflect the needs and desires of the Los Alamos community more collaboration with our northern New Mexican neighbors about how we can mutually help each other reducing overall waste and having an industrial composting facility so we can responsibly ban single use plastic frequent community events, activities, and outreach that harbor awareness, conversation, action, and hope -- best to collaborate with local businesses, schools, artists, etc.
- all county owned buildings have solar power; red tape for acquiring private solar panels is minimal; all unutilized green spaces (e.g. gravel filled median and roadsides, parking lots with space, the land around county buildings) undergo native landscaping for our native pollinators; becoming a dark sky associated city; terraforming the Reservoir from a dammed up body of water into a naturally filtered wetland for native fauna and flora, community gardens in every neighborhood; frequent educational programs (e.g. films, events, activities) done in collaboration with local businesses to raise awareness, action, and hope within the community; collaborating with neighboring communities like Espanola and the Pueblos to see how we can help each other reach our sustainability goals; reducing food waste within our community
- Stop selling out the people here.
- Residents cleaning up the dumps they call yards, growing their own clean organic gardens, raising chickens, bees, etc. Which are all necessary for our clean food supply and our environment.

- A community and county government that supports small and medium business. A better hospital.
- I prefer offering positive inducements to encourage people to change, such as increasing availability of ev chargers, easy to use public transportation, rebates for installing solar or replacing appliances with more energy efficient versions. Avoid punitive programs such as mandatory plastic bag fees, instead encourage use of reusable bags by offering a small discount at check out.
- Restrictions on single-use plastics, affordable options for low packaging groceries, water use restrictions
- Overwhelming support for the small businesses! Support the people who live here. Don't make more demands on the way we live in the wonderful community.
- Climate change is irrelevant Support small businesses is a better focus on resilience in the community.
- More safe in regard to wildfire, solar and natural landscaping encouraged
- We would educate people and have open debate on things like electric versus gas appliances, so people would understand that generating heat from electricity is a terrible idea. It actually dramatically increases CO2 b/c 50% of the electric energy is wasted. Simple physics.
- Have natural gas available in newly constructed residential and commercial areas. Clear out dead trees from forests and give that wood away to people to heat their homes.
- Full reliance on abundant and affordable energy sources.
- Work on creating resilient forest/woodland habitat in open spaces and protect wildlife from adverse impacts.
- Increased feasibility of active transit. I currently live in White Rock and would love to have a separated bike route to get to and around Los Alamos. Biking is my primary mode of transportation and I would love to be able to explore more of what Los Alamos has to offer with the convenience of my bike.
- Required highest attainable energy and water efficiency for residential, govt., and commercial properties. More P.V. and storage across all properties. County/DPU initiatives to promote installation. Increased propagation of trees and greenery. Enhanced public transportation to reduce vehicle use age. Increased EV fleets and charging stations.
- These are just words with little to no meaning.
- A somewhat smaller population without a bomb factory next door.
- Transportation and accessibility to resources to reduce climate change. Assistance in making homes energy efficient. Light or other energy use by county made more efficient. Don't have it on if it isn't needed. More chargers for electric cars. Incentives to use bus service or bike routes.
- Limited housing due to limited water supply
- It will take money. Effective recycling. Climate-friendly resources. As close to zero carbon footprint as reasonably possible. Investing in such resources for sufficient impact.
- We would have locally produced--HVDC--and distributed--AC--electricity that could AND WOULD be turned off during the effects of coronal mass ejections...
- Renewable energy resources (already in progress); more non-car options (separate bike lanes, incentives to use other transportation); County leads by example (no watering parks during the day, employees use other transportation methods, food waste composting at events)
- Decrease in lawns and watering, more native plants; decrease in lighting and other wasted electricity.

- I think the County always needs regular and alternative fuels. The dictate of a few individuals to require that the County move to 100% renewables is misguided. We need a balanced conventional and sustainable plan. Too often Council forgets that each proposal has costs to taxpayers and families attached and that should be a major consideration when deciding on a plan.
- Less employees at the lab. Carpooling
- Proactive utility maintenance and replacement.
- People stop watching CNN
- Stopping people from watching CNN
- Sorting trash and recycling (have more than 3 bins (trash, recycle, yard), more sorting places at the eco station, look up Kamikatsu Japan). More zero waste options for shopping, electric busses, and WAY safer biking options. I try to cycle to work but almost get hit every time. Have dividers between the road and the bike lane (either concrete or small reflective dividers), much more people would consider biking to work if it was safer. An even better longer term solution would be a bike path completely separate from the road. Make it easy for homeowners to install a grey water yard watering system. Why is the golf course able to do this but impossible for private owners.
- More chargers readily available for EV. Administrative offices open M-Th and realizing one day a week of energy savings. Much more accommodating and well planned regional transit system for employees and out of district LAPS kids.
- A Los Alamos that modernizes the whole system. Los Alamos has an aging infrastructure; major replacement of the system is needed to carry us into the future. we need to look at new projects and replacement projects as building for the future not just the present.
- I have no idea what you are getting at.
- More green energy and more sustainable housing.
- Depends on the Lab budget
- eventually no personal traffic from out of county coming in/out of county for LANL. Highly encourage workers to take the new bus system. Be curious and find solutions so that we can have reliable transportation for workers without the increase of roadway maintenance and individual personal vehicles that greatly contribute to our counties greenhouse gasses. - all citizens recycle regularly. More education to the public about our recycling program. Consider adding recycling services for apartments. - all citizens utilize the county compost (when it is done). Educate the public. Make it easy to participate.
- This is a BS question with an obvious agenda.
- One that has readily available services/shops.
- Reduction is carbon emitting vehicles with incentives to do so. Buildings with infrastructure to support less energy usage. Incentives for solar and alternative electricity sources. community gardening space made easy. Regular education on how to reduce waste and incentives to do so
- Continue to make the central business district more walkable. Continue and strengthen public transportation. Decarbonize the electric utility. Quit installing natural gas infrastructure in new construction. More EV charging stations.
- Smaller county budgets
- Population is our problem, not climate. A sustainable Los Alamos would be able to support the growing population without damaging the environment that is one of our biggest attractions. This has nothing to do with climate change.

- A community that sourced majority clean energy, had some of the highest water conservation measures for both commercial and residential uses, and had energy efficient architecture throughout neighborhoods and businesses.
- Residents would have fewer Lawns to water, more electric Vehicles with more charging stations, more County solar panels on schools, county buildings, land. More lab carpooling or bus riders. County/school electric buses.
- Reduction of government
- Independent clean energy supplies. Free, widespread charging infrastructure for electric vehicles. Focus on xeriscaping with natural plants rather than zero scaping with rocks which accelerates water evaporation and exacerbates droughts. Allowing all houses to have large solar arrays to power their own homes and communities.
- more options for us to quantify our emissions and to take action to reduce our individual and work carbon amounts
- Improved bike and E-bike infrastructure, especially to the labs and white rock. Overall reducing vehicle traffic and congestion.
- This is a vague question with much left up to everyone's definitions of these adverbs.
- Stop wasting money on projects that don't benefit a reasonable number of residents.
- Green and diverse energy source(s)
- One that does not rely on Gross Receipts Tax's from LANL. Balance the budget without them, then let's talk a resilient LA.
- Better recycling programs and workshops where we can learn to fix things rather than buy again. Community gardens. Assistance/education about solar energy, many want it but don't know who to trust to get it.
- I would move away from wood to natural gas and pollute less
- The same. If you can't take care of recycling in Los Alamos without having to ship it somewhere else then it doesn't work after you add up the costs for shipping it and paying for it.
- A program to have the county install solar panels on county buildings to reduce the production of electricity from other sources; convert, over time, county vehicles to EV or fuel cell vehicles; use alternatives to concrete which generate far less heat; plant a considerable amount of trees to cool the land; and utilize nuclear fuel for power generation for the lab and the county.
- Don't know
- more recreational things to do and stores, nicer homes
- Biking and walking would not only be a planning goal and priority in our Comprehensive Plan, it would be realized by creating off-street bicycle/pedestrian pathways between the residential areas and the major employment centers. LAC should make sure that equity is met by providing bicycle rental kiosks that also make it easy for residents to run errands, kids to go to school, and tourists to visit around town.
- Vehicles separated from bikes. Smaller, more frequent electric buses charged by an upgraded solar farm on the former landfill. Subsidized solar rooftops to reduce utility load. Gardens encouraged in front yards, parks, and traffic corridors. We're going to need the food.
- N/A
- natural habitat in yards for pollinators. Solar panels on most homes (county needs to be better at permits)
- Not sure. Haven't been shown any example of communities that are sustainable and resilient.

- Different bins for other recyclable categories. A community that never litters and always recycles. A county using old recycled materials to upkeep.
- N/A
- Electric buses, more dedicated bicycle lanes, nuclear power or wind power, bans on lawns to conserve water, incentives to get rid of natural gas stoves and appliances (but also boost renewable energy so electricity is greener) solar panels on public buildings, electric car infrastructure (but paid because people abuse the few free chargers instead of charging at their homes)
- It is sustainable and resilient with Fed's billions in funding.
- Strong utility infrastructure
- More public transportation; better connected walk/bike trails; more robust small business environment; limit (or reduce) need to shop/eat/entertain off the hill. Consistency in county regulations especially for small business.
- A lot less concrete; plant Native plants for color and pollination in public spaces; require true xeriscaping, not gravelscaping; more public transport and less traffic; require businesses to clean up unsightly messes and require more green space; no single-use containers in restaurants; solar panels on homes and businesses.
- more adaptive, more flexible, quicker to respond to situations, more open to trying things and new ideas
- Use of green energy and nuclear energy. Less overconsumption, quality products, less plastic, and 3-D printed houses that use less materials, bike path from White Rock to Los Alamos for safer bicycling.
- Continuing to provide more green areas. Reduce asphalt where possible. Encourage people to cut down on food waste. Take your own reusable containers to restaurants for leftovers. Encourage restaurants to make smaller portions available to reduce food waste. Compost where possible.
- Better public transportation (like having the buses run more frequently and on weekends/evenings). Safer/more bike lanes. Ban on styrofoam containers at restaurants.
- This Community (This Area, for that matter) is solely dependent on the National Lab, i don't see any other means.
- A well balanced community that works in harmony with its surrounding environment and works to continually improve how it interacts with the environment.
- More use of locally produced nuclear and geothermal power. More trails and less reliance on local roads.
- gray water use, electric scooter rental with specific lanes for them. biking and walking bridges over the canyons making it more feasible for most of the population to commute on their own power.
- A sustainable and resilient Los Alamos would have fewer cars on the road, more trees that are cared for and regularly watered.
- local (indoor?) food production, public transit state wide and every day, alternative to evacuation for wildfires, underground/bermed shelters to stay cool without AC
- Los Alamos would derive its energy from renewable, clean sources; utilities, cars, and appliances would be powered by electricity; all open spaces would be native plants with resiliency built into all ecosystems; there would be more mass transit and bike traffic and fewer cars and parking lots.

- Convert to carbon free energy and explore way to eliminate CO2 emissions.
- More solar panels on all county buildings and a high speed and well dispersed charging network for electric vehicles. Not just 2 locations in the county. If charging were either cheap or free to use zero emissions vehicles.
- There wouldn't be quite as many people.
- Better
- good protected bike ways separate from vehicle traffic, improved heating cooling systems available to upgrade dated housing, plant more trees, designate a portion of central as a pedestrian way with incentives for increased businesses
- Los Alamos would have almost everything that we need here in town, then we would not need to travel to Santa Fe or ABQ or order online so much. The county would work harder to keep businesses from closing, maybe help out before it gets to that point, and also new businesses could come in quickly to fill gaps in services.
- composting, gleaning and other re-use programs; growing food in Los Alamos with water-wise strategies; energy efficient windows and homes to curb use of electricity and gas in homes (subsidized programs for homeowners to be able to make these changes); bear-safe trash cans for homes and sidewalk/municipal use; education campaigns on these subjects; repair library or other program to help folks fix and repair appliances, clothing, etc. rather than tossing them; more bike infrastructure to reduce reliance on cars (bike lanes, bike racks, etc.) and maybe a bike rental program to allow folks to test these out (especially e-bikes) before purchasing;
- Water use reduction, more desert landscaping. As I mentioned before, a back up plan for producing electricity such as solar or wind.
- Invest in more stable carbon free power such as nuclear power.
- Los Alamos should be left alone. Our little town is not meant to have such a population and so much housing.
- More solar and a life without so much fire risk.
- Less cars and trucks more bikes and pedestreians
- Using Nuclear energy as a power source. Its reliable in any weateher, a small amount of urainium can be used to generate tons of electric power. Not like Solar panels and electric Vehicle batteries which are really bad to be mined out of the environment. solar panels are not reliable becuase they only work efficiently when the sun directly shining on them.
- More e-chargers, e-scooter downtown area, more bike lanes.
- zero carbon impact minimal water use
- Taking vehicles off the road.
- .
- It looks like propaganda.
- All electric all the time.
- Affordable housing, less commuting and energy conservation.
- a stable and reliable electric utility
- More people riding the bus or on bikes. Using solar and wind to supplement fossil fuel power.
- Expanded forest management with prescribed burning
- If we can add wind and more solar to our electric generation. We have a great water table and good water here.

- Low water use. Very little waste going to landfills. Renewable energy sources for 100% of energy use. Strict building codes to minimize energy use for buildings (ie. R-40 in walls, R-60 in roofs, 0.08 air exchanges per hour, R-8 windows, etc). Biking and walking friendly county with plentiful green public transportation.
- Understanding that impacts are individual, but the number of people currently working and living in Los Alamos proportionally impact every problem
- Powered by green energy, fire resistant/resilient
- 1. Integrate solar in our community on rooftops, in parking lots, and at the old landfill site, starting with the schools and county owned buildings. 2. Fine efficient mass transit that gets used by working people, both for commuters coming to Los Alamos from surrounding communities and within the community. We don't need more parking, we need fewer vehicles! 3. An Idle Free Los Alamos! No more vehicles idling! Unnecessary waste is painful and short sited. 4. Instill self powered pride, starting with the schools. The Santa Fe Conservation Trust has done an excellent job of starting a "Safe Routes to School" program in Santa Fe. Santa Fe county has taken over this program. Check it out! 5. Become a community that recognizes the importance of trees and plants!
- Very much like it looks today
- More insulation in home to keep them warmer in winter, cooler in summer with less energy use. Water conservation. Reusing water where can. Promote energy efficient green building standards. Promote ways to decrease energy use
- A County with zero carbon emissions. I think a great way to do that is continuing with the UAMPS project.
- It would be great if we were producing all the electricity needed to power our county right here, through residential and municipal solar arrays. That would make us more resilient and independent if grids go down. Also, saving rainwater and recycling/reusing water would help us to have a steady supply of water. This could look like water treatment ponds and wetlands and greywater systems as well as rainwater capture and storage on all homes and buildings. Ponds and wetlands would also be an emergency water source in the case of wildfire. Being plastic free as a County would be AMAZING! We could insist upon biodegradable plastics on all incoming goods. And, installing permeable pavements instead of impermeable would help with saving and protecting our water resources. Becoming pesticide free and pollinator friendly would increase the health of all of our residents. Teaching these sustainable principles in all of our schools would insure our coming generations would be leaders in this movement.
- Saving water and residents are able to live healthy lives. More EV cars and charge stations.
- Less wastefulness
- Vibrant and thriving community for ALL residents
- it would look like it did 10 years ago.
- Probably worse than it is now. The county can't even take care of its own weeds and infrastructure
- An economic wasteland
- One that does not jump on every fad that comes along
- Walkable, many stores, various types of restaurants, outside eating, a sense of community
- Fire mitigation around perimeters of county, ease for use of electric cars including more charging stations, easier to install solar with county codes, incentives to use alternative energy sources

(biogester, etc) in the county More small shops and restaurants to keep people not traveling off the hill

- Reliable power supply. Reliable, community-owned broadband system. Minimal evacuations due to fire threats. Reliable water supply. Not losing gardens and landscaping vegetation to an overabundance of deer.
- More recycling and drought control. Fewer cars, more public transport. Safer bike lanes. More Electric car charging stations.
- No lawns, local agriculture, retrofitted housing
- Using all the resources we have in a responsible manner. Don't throw out the baby with the bath water.
- No more new houses--too much drain on water supplies
- It would have a better electrical grid. It would embrace more renewables and help its residence to install solar, and geothermal. It should embrace small scale wind projects and then help the surrounding areas to do the same. Residence here can afford to stimulate the electric car industry and remove not all internal combustion engines, but the worst ones, the daily driven noisy, noxious polluters.
- A town with shopping and other amenities and not just full of apartments
- Healthy trees, in neighborhoods and forests. All electric, from residential and municipal renewable sources. Building codes for insulation and fire-resistance. Municipal composting. Business regulations that stop plastic packaging, and other trash-reduction strategies. Safe bicycle roads/paths. Usable public transport for common non-commuting trips, like shopping and the airport. Helping our surrounding, less-wealthy areas work towards all of this.
- Minimal government involvement in citizen and commercial business.
- Unnecessary funding allocated to unsubstantiated endeavors in which taxpayers of the county will carry the burden. Commuters and others utilizing the Los Alamos School system and community resources/perks will not contribute in any beneficial manner.
- cost effective solution that benefit and protect all income groups in community
- I believe we are above average environmentally 2) We should be resilient to economic changes 3) Being a community that is competitive, productive and generates jobs. We fail in this category. We have little to no competition for Kroger (Smith's) which was supported by our county council when Smith's opened the store. We have 12 to 16 thousand people here each day, but no where to spend their money. Office space is expensive, big corporations are supported by the county council. We have huge empty buildings while, I think that is getting better. The only thing that keeps us afloat is LANL. We could not be a sustainable community if they were gone. We are reliant on them and the town reflects it.
- WFH days = reduced traffic + improved air quality = smiles and potentially rainbows
- Sustainability and resilience Los Alamos would look like us dropping frivolous amenities like the golf course to open up additional green housing for our ever-expanding population, buying into more renewable energies to power our growing infrastructure, developing a bigger tourist hub to be able to hopefully make the town not as reliant on LANL profits taxes and workers to come here to give the town life. Finding ways to integrate community gardens and green energy initiatives that all local residents can take part in the point where we are carbon neutral going into carbon negative.
- Carbon neutral. But unsustainable at the moment.

- Electric fleet, more solar, some sort of transportation system or route to get commuters from Santa Fe to White Rock to shorten the trip time.
- More robust public transportation for commuters (from El Dorado, Rio Rancho, Taos, and more options from Santa Fe with greater flexibility especially those with families - bus routes after sending kids to school, after 8am) and/or ability to not commute (ie for those that work at the lab, to be 100% remote)
- clean air to breath, clear blue sky, lovely scenery with different colors, lots of clouds, and more rain.
- Expanded support for local self sufficiency and county support of businesses in the county. Reduce the cost of utilities for the community which uses less of the utilities. Have higher rates for the customers who use more of the utilities.
- -Older homes upgraded to be more efficient with both heat and cooling. -More use of community transportation (buses, shared rides) -Trees used for cooling. More Solar use.
- As little reliance on fossil fuels and environmental degrading practices as possible, while helping better the community as a whole. -Getting Our public city buses to be EVs (good job on having EV stations available in town btw) -Bulk options at smiths (and not just for rice and beans-I'm talking about pasta, ketchup, goodies, cereal, etc.) -Have energy companies partner with solar farms(orrr algae farms)-so people can still work with the LA utilities, but 50% or 100% of their energy is being sourced from solar. (Instead of making it the consumer's job to invest in solar panels) -Create a in town community plant food farm (I would love to help with)-Give incentive for people to volunteer by giving them "food points" they can use to purchase food from there or points to use in other parts of the town-ex: discount at a local bar, discount to the aquatic center, etc. Or tax exemptions if they volunteer a certain amount of hours each month. Not only does this make plantbased food more available and affordable, it teaches people how to sustain themselves on the most basic level and creates a place where the community can come together and enjoy each others company. -Create more second hand, affordable stores so people can reuse. (Boomerang and Casa Mesita are a little too pricey)-we need more sustainable options that are affordable to families for furniture, clothing, cookingware- and are open more than twice a week. -Giving businesses incentives to have sustainable packaging and sustainable products/plantbased items. -Smaller scales: making it easier on local businesses with fall back plans so that they stay open for more than a year or two. This makes our town economically more sustainable and makes it easier to incorporate sustainable change within the business if it's smaller.
- I see a home for us all wherein we are able to live with less reliance on extreme artificial changes to our environment: I would like better landscaping (public & private), better forest and open space management, better transportation management (roads & parking lots are a problem of town space tool!), support adjustment for working/studying/living flexibilities in the town, support for making changes to our individual homes (induction, heat pump, solar, anything that works), and more programs to encourage learning about how to make better choices in our daily lives (esp. if they are *not* coached in 'green' and can then be taken in by those who are anti-green).
- More housing, better road infrastructure, faster internet, water and snow capture facilities.
- More EV charging stations, less housing development/more open space.
- A county that used more clean energy and has more transportation options for it's transient work force.
- No more Audis, no more Mercedes Benz, no more Subarus. No more Phds from Ivy League institutions, or from the CCP.

- Allowing any home-owner to install solar panels and EV charging stations and countermand any HOA requirements against them.
- Recycling should go up.
- Trick question.....too many things play into sustainability to be able to answer without more detail
- Increased solar power production Decreased water consumption
- As a county that describes itself as "where discoveries are made" Los Alamos should be leading the state in sustainability. Los Alamos should pursue decarbonization aggressively and Los Alamos county should partner closely with Los Alamos National Lab in this effort.
- I don't know.
- fewer cars on the road
- More rooftop solar 2) More home greywater/water collection systems 3) No wasteful lawns 4) Less lighting--I know LEDs don't use much energy but people's light pollution here is ridiculous
- Wasteland
- A County full of trees.
- I think it might be harder to live in because the people in charge are going to over do it and make life more difficult. Example taking away gas stoves.
- Completely powered through renewables (tho small nuclear would be good too) with all homes/businesses equipped with solar PV, water wise with reduced and efficient water use, robust/resilient mostly electric infrastructure including transportation
- More distributed solar and other power sources, strategic burying of certain power lines to reduce wildfire risk
- A place where we live within earth's renewable resources and eliminates earth's overshoot.
- The building code doesn't allow me to put a pergola in my front yard that would block sunlight into my home. Therefore, I support green building measures.
- we need an improved climate for small business.
- Less traffic. Having more amenities walkable from work places and homes. Having more eating places available near buildings where people work, so they can walk to get lunch instead of drive.
- modern, clean, attractive
- More people riding buses, walking and biking for transport.
- A sustainable Los Alamos first needs more equitable distribution of resources. Especially land, the heaviest consumers often disproportionately benefit from it while many shoulder the burden, e.g. the golf course. All consumers should be expected to pay their fair share.
- Keri g all the good we have and de bell ping retail. Right now the County does not seem friendly toward small business, so residents have to shop elsewhere, using gas and creating emissions.
- I think Climate change policies can hurt Los Alamos. We live in the mountains. We have hot days in the summer and it is summer time. In the winter we have cold days because it is winter time.
- I don't know
- Stop trying to interfere with the planet waking up from its slumber.
- A county powered by a small nuclear reactor power plant. Magnetic train transportation within the county and to adjoining towns. Especially to Santa Fe and Espanola.
- Better bike routes to reduce car emission for local residence to walk and bike to work

- Good access to businesses and professional services. Clean recreational facilities. Academic studies in all schools.
- More use of public transportation on and off the hill
- Renewal energy source such as nuclear power along with wind and solar.
- Similar.
- Energy security based on reality, not fairy tales.
- LAC and its affiliate departments make changes to the grid so residence can have then option to install renewable resources.
- Focus on renewable resources (electricity, water, natural gas) would lead to a more resilient community.
- Downtown Los Alamos closed off to traffic except for bicycles, electric carts, and buses. Call it the Green Zone. Example as found in Adelaide, Australia.
- higher density, less car dependent, and at least one more road down the hill.
- Using ground water no faster than it can recharge. 2. Plenty of power line capacity to handle distributed solar. 3. Mostly renewable power with enough backup that we avoid brownouts during extreme weather 4. Thinned and green forests
- It would look pretty much the same, as most of the needed changes needed to get to net zero carbon for the combined community and Lab would be implemented outside the county. Also note that switching away from natural gas and going to electricity would not make Los Alamos appear visually different. ("Look like" is a probably poor choice of words.)
- no difference
- Los Alamos would have an infrastructure that supports the change, the resources to help residents achieve it, and the willingness to educate and help residents come along. This is a long process and the county must listen to those who do not agree and not turn their minds against them but understand their point of view.
- More reliable electricity infrastructure; 2. Stop trucking our garbage to Rio Rancho
- More people in public transit, ride-sharing, walking, and bicycling--using their own power. Allow and encourage hanging laundry outside to dry, where feasible.
- The County would be more sustainable with local shopping. Forcing the County to commute to shopping centers in other communities is a waste.
- Carbon neutral or reduce carbon footprint. Replenish areas with trees to offset construction and concrete. Offer incentives (tax or otherwise) for homes with traditional landscaping like grass to transform into more climate friendly and appropriate xeriscape options that offer bee, butterfly and bird habitats with less reliance on water. Figure out a way to partner with LANL to offer better mass transportation services to reduce traffic, which is creating more congestion and carbon emissions. Current Atomic city schedules aren't the answer when it takes 45 minutes to travel from N Mesa to transit center. Due to drought and forest destruction, wildlife encroachment is becoming a safety issue wrt wildlife and cars. Look at ways to build in wildlife corridors along Diamond Dr up to Barranca roundabout. Enforce speed limits in our communities (cameras?). My Western area neighborhood has too much traffic and people driving fast. Lack of healthcare access/options is becoming a local and state-wide threat to our resilience as a community.
- Either less asphalt or more solar panels over parking lots. Or alternative, more white paint in parking lots. Asphalt increases local heat more because it's a) black b) retains heat super well. If we can stop using as much asphalt, or keep it shielded from the sun better, it'll absorb less heat.

Solar panels may be a good idea, but they're expensive. A light-colored paint over large patches of asphalt would probably slow the heating.

- Less car-dependency. More education in drought-tolerant agriculture practices and fewer green lawns. Less dependency on the power grid.
- Gosh. Foremost: We need to work on our image with neighboring communities, and that starts with using 4x as much water per capita as any neighbor. No more green lawns at houses. The golf course would have to go, maybe that could become farmland. On-grid electrical storage, to the point where Pojoaque, Nambé, and Española see benefits, too. Investment in energy generation nearby. This is another area where we can strengthen relationships with our food-producing neighbors. The Spanish named this area "the big burn" and we're going to have to accept that this is part of life here. 200-foot pine trees 4 feet away from houses need to go. Letting critters back who aerate soil will have to happen, if it can be done. We're already ahead of the game when it comes to adoption of e-bikes and solar panels. That's encouraging, but it's all individuals. Do we have the resolve to act as a community, and can we band together with our neighbors? That's what a sustainable and resilient Los Alamos looks like to me.
- Walkable downtown, sufficient housing, transportation, and infrastructure, commitment to plant based diets.
- One that takes all actions with an eye to how it will effect the environment. Minimal impact on its citizens with a maximum impact on helping the environment.
- fewer cars on the road
- Another stupid question
- a local economy that would survive the changing/closure of LANL
- Looks like current Los alamos, more focus should be placed on the resiliency of our small businesses
- I do not know
- A strong economic base, not as reliant on the laboratory, that encourages small, medium, and large business to come and thrive. "Sustainability" as you define it will come as the market allows.
- More renewable energy sources, lower emissions county vehicles, less waste
- Continue as is
- Solar panels on all county buildings and schools, many businesses and homes. Plenty of EV charging stations. Fewer asphalt parking lots. Greater use of drought-tolerant plants in landscapes. No wastage of water. Clean air.
- A sustainable and resilient LA county would have easy and convenient zero-emissions public transit, along with easy access to charging/hydrogen infrastructure, a zero carbon electricity supply and active cooperation between the County, Laboratory and public schools to accomplish these goals.
- public transit on evenings and weekends, County-provided utilities run off of renewables, more EV charging stations, collaboration with LAB and Schools to reduce waste/make improvements
- vibrant downtowns with places for people to meet, live, and enjoy life
- Long term water budget maintained. Population growth managed with available space resources, and importing of needed other resources accounted for in planning.
- More natural landscaping; less blacktop (asphalt) parking; more bees and (monarch) butterflies and other pollinators; more composting; less plastic (including bags "decorating" the landscape

- Policies that encourage sensible and sustainable water use (e.g. rates with meaningful tiers); little or no reliance on coal or natural gas; infrastructure for electric vehicle charging; less trash that has to be trucked to distant landfills.
- I'll leave that to the experts.
- A community that produces the energy it needs, does not deplete the surrounding rivers.
- Better electrification, easier transport by walking/biking/bus. More incentivization of water and energy conservation. Lots of homes are under insulated and not up to modern code and weatherization and conservation could be incentivized.
- We may see a small nuclear reactor installed here to provide safe and clean energy (see Our World in Data). Infrastructure modifications to accommodate a changed energy supply.
- Would look like the Los Alamos of 30 years ago before the climate change fervor took over. Individuals have lost their ability to live independently apart from the climate change activists.
- More recycling and reuse of items
- Clean air as it is now. More roads.
- Solar power for each home and business supplied by the government. Electric car charging stations in town. Electric powered city vehicles (e.g. mail trucks, county vehicles) in use instead of gas powered. Financial incentives for residents and businesses converting landscaping to low-water vegetation (e.g. xeriscape).
- Since 'Greenhouse gas (GHG) emissions from human activity is changing our climate' we should reduce the number of humans creating GHG in our county. Los Alamos County seems to be planning to INCREASE the number of humans. Think about that.
- Get rid of the golf course - such a waste of water
- No plastic bags. More recycling.
- Improved biking and bus infrastructure, incentives for household solar/heat pumps/etc., plastic bans, required water conversation measures.
- Cleaner air, quieter town due to EV's, a feeling that we're doing our part.
- Reliable electric power and a slow, carefully engineered transition away from fossil fuels that makes significant use of nuclear power.
- Try supporting small business. Something the County and elected officials have NOT done in years.
- One that traffic flowed when the lab closes.
- Less concrete, better air, protection of dark skies and strict regulation against noise pollution.
- Electrified buildings & vehicles / buses; electric power from renewable sources; rooftop solar with bi-directional EV batteries; a quieter and calmer community without combustion engines; less traffic w/ ACT and e-bikes; parks and fields watered with reclaimed water; value-added composting and recycling; zero waste mind-set.
- Good question
- All decisions for infrastructure or business would start with sustainable options: wind, solar, low impact, grey water - and mandatory for all new construction including housing. See Davis, CA for ideas.
- Definitely keeping all the trees we have. Making gray water available for individual households to water yards/ flower beds, not only golf course and sport fields. Education and more education. Citation of people who don't secure trash and/or feed wildlife.

- More walking paths and trails linking parks with city resources. Another road off the mountain for fire evacuation.
- A town and county that doesn't have constant power outages, water main breaks, bad small business community, and a population that must rely almost completely on corporations to exist and thrive. A town and county who is interested in using tax payer money in solving actual problems that face the community rather than trying to solve a problem that we didn't create and mostly don't contribute to. A community that isn't being bled dry by stupid taxes collected for no purpose.
- A smaller mountain town by moving PIT production and LANL activities to a more feasible site.
- Clean energy source - nuclear, geothermal, wind, sun, battery storage technologies. minimizes usage of LANL's aquifer through water management, reduces chemical pollution into the environment - such as making sure PFAS is managed well - avoid release of AFFF foams into environment, electrification promotion - phase out natural gas and other carbon-based fuels, usage of heat pumps. LANL and the County partner to reuse materials such as asphalt, concrete. Implementation of cooling centers at LA County facilities on hot days. Recycle materials when recycling makes economic sense - otherwise landfill. Work with LANL to support/promote wildfire management operations such as with forest thinning efforts. Also, promote mass transit as the primary means to move around LA County, LANL, and White Rock with buses utilizing emerging battery technologies. Consider replacing hydrogen for natural gas when natural gas infrastructure already exists. Tree planting initiatives for carbon capture and shade around LA County, LANL, and White Rock. Grid modernization for intermittent energy sources (wind, sun)
- Fewer green lawns, more natural local vegetation, more photovoltaic systems on rooftops and over parking lots, more charging stations, less lighting of businesses and parking lots, active collection of glass for recycling and of compostables
- A community focused on water conservation and resiliency - utilizing green and LID development practices, rainwater and greywater capture and reuse incentives, education and community empowerment. Incentives for net-zero energy and water practices.
- More solar and wind power. County assisted weather proofing of homes, better bus service
- access to carbon free energy (wind, solar); more efficient consistent handling of waste (garbage, compost, recycling); help in transitioning to carbon free and energy sources and greater efficiency (solar panels, heat pumps); access to carbon free transit (electric buses, scooters, e-bikes) for in town / around lab campus use
- Not like California. We are a poor and rural state where people have to drive.
- Native plants, majority of lawns in public areas
- Nuclear energy. Forest management that reduces fuel in canyons. Encourages residents to recycle and incorporate solar, if they can afford, but does not demand elimination of natural gas.
- Creating community efforts to plant native grasses and trees along the surrounding wildlife, as well as regular maintenance of fire breaks.
- One where the county doesn't waste money and time on things like this.
- A place where people can get jobs that provide a decent wage and satisfaction. Basic services needed such as adequate number of tradespeople (plumbers, electricians, contractors, etc.), dry cleaning, shoe repair, more laundromats, more dining venues, more locations to hold events such as family reunions, wedding receptions, retirement parties, etc. Identify why people travel to Santa Fe for needed services and help establish or recruit those businesses to the county.
- Have processes in place that pay for themselves and protect local environment. Quit focusing on goals to save the world.

- Maintaining diversified energy resources.
- Things change so fast but nothing is really accomplished toward solving the problems.
- Retain natural gas and remain diversified vs an all-in approach to electricity.
- Well- developed public transportation, PV panels and water catchment on residential and commercial roofs, dense downtowns with walkable greenspace (things we are doing now but MORE and BETTER)
- Growing businesses and less empty buildings.
- The same
- Sustainable: one where people could open business w/o the County making it difficult. Resilient: one in which people are left alone to live as they please with as little government intrusion as possible.
- It would look like a county that puts much more emphasis on human-centric infrastructure over the current car-centric, traffic-congested present. The County needs to emphasize public transit and alternative forms of transportation like cycling over single occupancy vehicle use. That means dedicating money and resources to things like a centrally located transit center and separated and protected bike lanes. Paint is not infrastructure and painted bicycle lanes in the shoulders of the roads are completely inadequate and only used by the most passionate and fearless cyclists. These practices among others would eliminate (not reduce) much greenhouse gas emissions at the source and especially eliminate many transportation-related high energy intensity activities. The County also should emphasize denser neighborhoods over the current dominance of single-family zoning. Parking minimums can be reduced to free up more land for denser development closer to where people need to shop and work, for example. Much of the downtown area is land wasted on empty parking lots. It can be used much more productively if the County chooses to use it wisely. All of these things are one vision of a sustainable and resilient Los Alamos.
- Housing. We need more houses
- Increased accessibility to housing, food, water, natural spaces, education, and high-paying jobs. It would reshape our urban spaces for ease of use and a blending of technology and nature.
- A place that values and protects open space, air quality, water resources, and reduces its carbon footprint
- Safe bike lanes with ample room for e-bikes. Mountains I can still see (I.e., don't build beyond three stories). Curbside composting. A populace that understands and appreciates wildlife—and respects it. Educated populace that doesn't use pesticides and herbicides, or poison bait that kills wildlife.
- We could be a benchmark community for testing less polluting energy sources such as the small nuclear power reactor program the County is already participating in; and, by enhancing efficiency of the delivery systems (the grid), for example.
- If the government stays out of it
- Continuous waste diversion, food composting, food rescue centers for people, sustainable agriculture, promoting local farmers to reduce food travel, independent bike lanes to promote safe bicycling around the community, offering programs that help community members make the right choices for the environment, adopt the latest building standards and offer programs that help retrofit the community households and businesses. Educate our next generation (students) about these problems/solutions. Dedicate funding to continuously support energy and water efficiency, waste diversion and reduction programs, bicycle infrastructure.
- Worse than it is today.

- One in which people can live their lives with minimal government intrusion, and one in which the county quits wasting our money on dumb things like this climate action plan.
- renewable energy sources, nuclear power, clean fuel for buses.
- Increased wages for licensed non lab workers to reduce commuting.
- Leave Los Alamos alone. We need our little town back without all of the politics.
- better wildfire fuels management of canyons.
- Solar, wind, and recycling of waste and water. Household use of grey water would be nice.
- NO different then it looks today
- Less Government involvement/overreach within the citizens' lives.
- LA could lead by example in relying heavily on state of the art nuclear power generation as an alternative to gas/coal fired plants.
- Nothing with Hunga Tonga-Hunga Ha'apai greenhouse effect. Oh, you could keep electrical infrastructure running and decrease natural gas costs.
- Present information and opportunities to improve the environment and allow people to make their own decisions.
- Improved infrastructure for biking/e-bikes, especially the Diamond/trinity intersection. More incentives (cash offsets) and improved system (online tracking) from DPU or NM for homeowners and businesses to invest in infrastructure that improve gas efficiency, reduce water waste, improve HVAC systems, encourage composting and reduce other methane producing items in landfills, etc. Transition electric generation from coal to renewables (hydro, individual or massive solar farms). The cost must be at least marginally matched with less efficient methods or else nothing will change.
- Electricity from renewable sources Water saving solution (access to tray water, rain collection....)
- Better use of resources. People more engaged in taking care of resources
- I would expect that a sustainable and resilient LA would be working to be more self-sufficient, reducing its costs and dependence on external infrastructure/services, and working to optimize practices both informally and perhaps via ordinances or other means, to encourage efficiency, reduction of waste, reduction of environmental impacts and so on. When we have residential water restrictions in effect on the mesas, and DPU is putting out reminders about best practices for lawn watering and the like, I find it concerning to see apartment complexes watering at high noon with significant overspray onto paved roads, pooling, and other waste. I have greater concerns when I see similar watering-at-high-noon going on at the golf course, schools, or other county operated properties. LA and LA county should be acting as role models for the water conservation practices they want LA county residents to be following. Being in a land-limited and somewhat isolated location, LA county spends money shipping trash and recyclables out of town, and many other things have to be brought in. As just one of many examples I frequently encounter, it pains me to see local LA county restaurants that still provide styrofoam single-use cups, which in other U.S. states and regions have been all-but-gone for decades already -- there are certainly cases where a styrofoam cup is needed, but I hate to see that as the default, it should rather be the exception... In other mountainous regions like Switzerland that have similar challenges (rocky terrain, high costs associated with trash, etc) recycling and avoidance of trash generation is taken very seriously. There are lessons to be learned there that seem to be to be particularly relevant for LA county. Given NM's relatively low population density in comparison with other states that can more easily make use of nuclear power, after having moved to Los Alamos, I find myself keenly aware of the fact that wasted electricity immediately becomes soot in the sky somewhere. As such, I would want to eliminate trivially evident waste from

excessively bright and/or poorly designed light fixtures that are left on all night every night. I'm sure that given the aging houses in many parts of LA county and the ongoing increases in peak temperatures, there are significant opportunities for county residents to improve efficiency of their HVAC systems, insulation, windows, and other upgrades that would have a direct and significant impact on gas/electric usage. When I bought my house in LA county, I was surprised that its interior lighting was still largely composed of incandescent lights, something I had entirely replaced in my previous house in Illinois already 20 years ago. From what I've seen of other houses in LA county, many have not taken advantage of even very easy opportunities to improve energy efficiency thus far.

- Depends on your definitions and government actions. From the questions in this survey I would guess LA would be poorer and a much less pleasant place to live.
- For residents to voluntarily practice using less and energy & resources (eg not watering excessively) but not by governmental mandates.
- The same way it does now.
- Affordable housing, standard rainwater and grey water catchment systems on every building, water usage regulations and higher prices on municipal water use. Incentives to get contractors committed to doing work on upgrading local homes and buildings to move them away from gas. Residential and municipal solar.
- a nightmare
- One where local government uses its tax base to promote a resilient private business base rather than waste it on climate action activities
- ?
- More walkable with public transit options that provide a highly compelling alternative to driving.
 - Electricity provided solely through renewable energy
 - Investments into improving green spaces to offset the urban heat island effect
 - Large investments into reforesting some of the burn scars, but in a way that avoids future fuel risks
- Continued reliance on natural gas with a more gradual transition to alternative energy sources as infrastructures are properly developed, engineered and matured.
- Simple environmental protections in balance with reasonable public use
- Maybe more Tesla's and fewer big pickups. I assume there will be more mini-splits, but that shouldn't be a big change visually.
- Nuclear energy
- A community that focuses on supporting expanding that research base on the climate.
- One where science and not politics influences policy
- One that takes common sense approaches that don't bankrupt our county.
- Abundant and inexpensive domestically produced fossil fuels
- More renewable resource use
- A city run on solar and wind power, reduce greenhouse, gas emissions, encourage electric vehicles, fast chargers, around town, electric powered city buses, tear down old buildings and build new energy, efficient ones. Penalize building owners that keep their buildings empty and not up to code. A city of the future! A compost center and compost pick up. Incentives for people to put solar panels on their houses, incentives for people to collect rainwater. Reduce plastic use, all businesses and Smiths should use compostable, takeout containers, food, containers, cutlery, straws, you name it.

- Making sure all residents can still afford their energy bills — don't do things that make bills too high
- A community with bus service from Santa Fe and Espanola to reduce vehicles coming up the hill. The Lab would encourage bus riding vs driving to its employees. Homeowners encouraged to adopt solar.
- Save money and resources by using natural gas and fossil fuels and minimizing construction of wind and solar farms, Both are much more costly and destructive to the environment.
- Affordable energy from numerous sources. Everyone should benefit from renewable energy and no one, including middle class folks, should suffer from the cold or heat because they cannot afford to pay for renewable energy.
- Stop building housing.
- More local resources, so residents didn't have to go off the hill or online shop for needs.
- Trying to conserve water, only watering early morning or late night. As water infrastructure is replaced in the county, put in two lines and use the processed sewer water and pipe it through the community for watering lawns, trees, etc. A red and green water line.

Question 9: The state of New Mexico has a goal to reduce greenhouse gas emissions 45% by 2030 (compared to 2005 baseline levels). This ambitious goal will require implementing new regulations and programs across major emissions sectors, including transportation, buildings (electricity and natural gas), and solid waste. Compared to the state target, Los Alamos County's target should be....

Take no action - please elaborate below.

- True Science does NOT support climate change. We need more CO2 to sustain life !
- This will control the way we live! This plan is will steal our freedoms
- Climate change is a fraudulent way to control residents.
- Taking action will only create angry citizens.
- The state's goal is based on false and flawed data and assumptions
- County-level governments should not take on this task.
- If climate change is real, why would it matter what Los Alamos did? We aren't going to change the pollution created by China and India.
- Los Alamos should work on modernizing their aged infrastructure and systems, then they would be better equipped to tackle these goals: Electric Vehicles, electrification throughout the county
- Does not matter since India and China wag the world
- self explanatory
- Let the market, not the government, decide winners and losers.
- Stop wasting resources
- The state of NM goal is ridiculous, with little hope of implementation because of the poverty in this state.
- Los Alamos County should take the initiative to be an example, not a regulator. Once lessons are learned the populous will be more inclined to take additional voluntary actions.
- Action needed beyond LAC's capability.

- if the plan is electric vehicles and wind turbines solar panel they are worse for the environment which makes no sense. Destroy more to help who the electric elite the government who is selling bad ideas and more debt.
- There is no problem with people being responsible and doing the right thing. But all of you self righteous people need to encourage people to do better not try and force things down their throats.
- Let the individuals deal with it as they see fit
- We already can't keep small businesses as is.
- Waste of money with minimal effect.
- Proposed actions to reduce greenhouse gases are not effective and waste of money.
- What regulations or mandates. Not voting for this one until I know what the drafts look like.
- This theory of climate change is false.
- Gavin Newsom has his penis so far up Michelle Lujan Grisham's anus its amazing her voice doesn't sound like his. Get a govenor who doesn't aim to be Kamala 2.0 and then seek what resonable people want. Don't listen to the activists, listen to the grand parents of the people who pay the taxes.
- climate change is a hoax
- This is a scheme to apply more taxes to NM citizens when nature can resolve perceived problems
- More regulations will make life more difficult. Fossil fuel supply 30 to 40 percent of NM money. What is going to replace that?
- You do realize that water is the most abundant green house gas, right? It's worse than CO2 and methane combined. Why would you want to get rid of it?
- Life is based on CO2, quality science is needed before any action.
- Putting all ones eggs in one basket historically is a bad idea. Furthermore electric/green energy storage has not caught up to demand and very expensive and does nothing to lower our carbon foot print as it shifts the footprint elsewhere
- Until there is a realistic plan to actually get to zero emissions we would just be wasting money without fixing the problem.
- Greenhouse gas emissions is not an issue
- dont need any more government in my life
- See above comment. What LA does is inconsequential.
- Climate change impacts are propaganda
- Los alamos needs to focus on housing it's community.
- Not everyone can afford an electric car OR the expense of getting a charging station installed at their home.
- MLG is actively destroying New Mexico for her own benefit. We should do nothing to support her.
- According to NASA, the earth has warmed 1.8 degrees F since the 1880s. It would seem that there are more important priorities to keep Los Alamos county sustainable and resilient than to spend our tax dollars on this. The climate is always changing. Data shows that there are not more hurricanes and adverse weather events than in the past and the number of wildfires overall have actually decreased. The increase in intensity and size of wildfires is due to years in which prescribed burning was halted causing an overgrowth of easily ignitable fuels. And most causes are human started followed by lightning. Climate exists in cycles. Warmer than normal

weather is affected by volcanic eruptions both in the ocean and on land and by a cyclical period we are in. What will be the discussion when we enter a colder than normal cycle?

- No need for action.
- None required
- Implementing more regulations is harmful to the taxpayer.

Question 10: Please elaborate on why you believe this should be Los Alamos County's target. (Open response)

- We R a town built on Science. We should be the leader
- With LANL as our powerhouse, the Los Alamos community is in a unique position when compared to other towns across the country -- we are already nationally recognized for the Manhattan Project and our continued work towards advancing science and national security; this means that Los Alamos has an opportunity to become a model city for other communities across the country. If done correctly, we may spark real change with our continued excellence. **HOWEVER**, any cost incurred to community members should be thought over carefully and, ideally, offset by other means. Though I'm not aware of the power that local governments have over taxes, enacting a "give-and-take" strategy towards reaching this ambitious target would ensure that political blowback is minimized. When determining the cost investment necessary in becoming a national leader in climate action, PLEASE hold multiple easily-accessible and well-advertised town halls. If you include us in your decision making, face-to-face where our collective humanity is most apparent, you reduce the chances of all your hard work being torn down a decade from now when new people are in power -- see as reference the UK's fall from climate leadership, along with many other European nations where near-authoritarian climate policies sparked a harsh policy reversal mere years after they were first put in place.
- The theory of climate change caused by CO2 emissions relies on computer models that have proven to be unreliable. They cannot predict the present climate, and past predictions have not been accurate.
- With LANL as our powerhouse, the Los Alamos community is in a unique position when compared to other towns -- we are already nationally recognized for the Manhattan Project and our continued work towards advancing science and national security; this means that Los Alamos has an opportunity to become a model city for other communities across the country. If done correctly, we may spark real change with our continued excellence. **HOWEVER**, any cost incurred to community members should be thought over carefully and, ideally, offset by other means. Though I'm not aware of the power that local governments have over taxes, enacting a "give-and-take" strategy towards reaching this ambitions target would ensure that political blowback is minimized. When determining the cost investment necessary in becoming a national leader in climate action, PLEASE hold multiple easily-accessible and well-advertised town halls. If you include us in your decision making, face-to-face where our collective humanity is most apparent, you reduce the chances of all your hard work being torn down a decade from now when new people are in power -- see as reference the UK's fall from climate leadership, along with many other European nations where near-authoritarian climate policies sparked a harsh policy reversal mere years after they were first put in place.
- There are a lot of smart people. Why they are not questioning the agenda is beyond me. It is embarrassing how all the PhD's and scientists living here and blindly believe there is a "climate problem" when 300 scientists specializing in climate issues across the world have proven there

is no climate problem. Using this issue to usher in the 2030 Agenda by the WEF is unbelievably corrupt. Is there any integrity and critical thinking and research left in this town?

- Solar panels last for only a short time. Then they are thrown in our landfills and they don't break down. Wind farms kill thousands of endangered birds of prey every year. Remember the fiasco in TX with the ice storms?? Wind/solar are not dependable. Electric vehs aren't the answer either- look at the harm to the environment to create the batteries for the vehs, absolute atrocious!!!
- Because Los Alamos should lead the way in science, not political science.
- LAC has the most resources per capita of any NM county, covers a small geographical area, and is a well educated community. We can't achieve significant improvements, who can?
- As a wealthy/privileged county we have additional responsibility to exceed these goals
- We don't want or need to be controlled. The climate change hoax is not about our environment but about controlling the people toward agenda 2030 and supporting the WEFs goals of control.
- It should not
- We have the resources to lead.
- We have more educated people than in many other communities. We should lead the way.
- As a nation we are already far ahead of developing nations, China and India, who produce many times the emissions we do, so making our lives more expensive to reduce a microscopic % of global emissions is insanity. We need to focus on the real problem. Not virtue signal.
- The target should be to increase availability of fossil fuels in the county and do not force people to go electric.
- It should NOT!
- Climate change is an underestimate threat to the ability of people to live in this landscape.
- Having a mixture of mechanisms give the best probability of success.
- We have limited resources. We are more susceptible to drought. We have the brainpower and a forward thinking community. We have the opportunity to showcase what can be accomplished.
- Relocating emissions, mining, and waste to other less prosperous countries is quite the virtue signal. We care so much! Not.
- It's pretty wordy already. We're relatively rich and should devote some of our excess to improving the world.
- Alignment with the state gives us a starting point and allows us to move up to more ambitious goals rather than stumbling out of the blocks.
- Less government control of individuals to make their own decisions
- Los Alamos should be the leader in the state for all things.
- To reach any target, natural science (of behavior) tells us that the more methods are NON-coercive, the more successful they will be.
- Where did the 45% number come from? let's go for 50%! Look, the sooner we stop putting GHGs into the atmosphere, the more likely we will have a future that looks like today. More GHG means more temperature increase, greater climate disruption, and more cost in the long run.
- Los Alamos is known for its science and could be well-positioned to be a leader and role model.
- We have motivated, intelligent people here.
- I do believe that change is needed, but feel the State has made goals without due and proper consideration. As the State is truly one of the lowest median gross income states in the nation, reaching their goals comes at a higher costs than I think they really understand. Similarly,

Council must consider the true day-to-day costs on the average family, some of which do not work at LANL and can afford slightly higher tax bills. As much as the area needs real workers, teachers, etc., implementing lofty goals can be devastating to regular working class families.

- Los Alamos should be a leader of the State with its level of education. The risk is resentment because others in New Mexico do not get paid as much as Lab employees. Others cannot afford electric vehicles, using less water, etc.
- County government is just one layer of government, so County should restrict itself to true County business and leave "higher" level business to state and fed.
- Los Alamos, with it's high amount of scientists and engineers, should be on the forefront of both science and engineering. What this looks like is being a leader in promoting climate change actions. Simple things such as expanded safe bike infrastructure and public transit options would fall into this category but could also include larger projects such as investments into renewable energy sources for our utilities. Los Alamos, the city on the hill, should be looked to as an example on what to do and should not accept the status quo, instead should challenge it and be the beacon to which other cities even outside of New Mexico look to. Additionally, being a smaller city gives us the opportunity to enact large change without the larger upfront costs that larger cities may have.
- Realistically we should let the state work through the challenges and benefits of going first so we can then logically plan to avoid lessons learned. We also need enough time to ensure infrastructure is in place to accommodate large shifts in fleet and equipment and give vendors that same breathing room. Mandates will create dissension and more division of political views.
- the current system is aged with a lot of is passed or coming to the end of its lifespan, making the system less reliable in multiple areas. and this problem grows every year we dont aggressively replace infrastructure.
- This town is already very low greenhouse. If anything it is the lab that needs to be put on notice to reduce by the county.
- Leading statement. Why have any target on something that does not matter
- This county already prides itself on climate initiatives. We have a highly educated population capable of doing what is needed. I believe most people of Los Alamos would want to be recognized as a leader in this arena.
- Because whatever Los Alamos shoe size is if we decide to try on a smaller size (footprint) its not going to stop foreign countries who have few to little regulations. Their footprint is the size of sasquach and I dont see him wearing tiny stilettos anytime soon.
- There is no emergency. Actions should be carefully thought out and realistically evaluated.
- We should be leading in the state. With great resources (our outstanding people) comes great responsibility.
- Because Los Alamos is home to so many bright scientists. It would only fit that it exceeds climate expect
- As a science-based community, Los Alamos should lead on this issue.
- The County Council talks a lot but there's never much positive action. County employees don't care since most of them do no live here.
- Los Alamos needs to set an example for the rest of the State
- We are a fairly affluent and small community, which would allow us to make more impacts compared to other towns and cities. We also have an enormous energy usage through the lab. If we want to counter that usage, we need the most ambitious goals possible for the county side.

- The changes will be expensive. Not everyone can afford some of the changes.
- You are wasting people's time and money with a problem that doesn't exist
- Los Alamos is a center of innovation in this country. We should use that lineage to be at the forefront of sustainability and clean energy sources.
- More rules and regulations to follow just slows everyone down and more everything more tedious. More bureaucracy and less progress.
- If NM actually met this goal that would be a large step forward.
- I believe that Los Alamos is in a strong economic position, and ideal size to test methods of sustainability, that could be used as an example to other towns and cities.
- A town like Los alamos should lead innovation
- LA already has high costs of energy and waste, this is itself a disincentive into over use of gas and electricity. LA should incentivize solar home.
- We should atop wasting money and energy on contrived problems.
- We should be aiming to completely eliminate gas emissions by 2030, not just reduce them by 45%
- New climate policy will only increase costs and take away freedom
- LA is small, and has a small foot print by its self. LANL will not be required to fall in line with this, and our neighboring community's will not have the resources to do the same and with that will not follow or enforce the regulations. being that more than half the work force comes from off the hill, its a great wish and want. Try as much as the governor wants, it will not happen in our life time.
- We have limited resources and I believe a majority of the community want to help our environment.
- I live in a 1952 house going more towards wood I probably pollute more. More ambitious would drive me into poverty.
- What it is now. If you have several county trucks cruising around now just billing time, then you should get rid of the employees or programs they support and you won't have the waste. But, the county only employees friends and family of people that live off the hill, so the need for them to travel up here also is a waste.
- This is a small community (Los Alamos and White Rock). There are a lot of folks here with high incomes from the lab and the county. Their money should be invested back into the community.
- Los Alamos has access to a great deal of technology which can be applied to the county and lab infrastructure first. Solar panels on and in new construction; reusable waste streams in county and new housing; window coatings that provide solar energy in buildings and homes; and an aggresive effort to plant trees that absorb CO2 and help cool the excessive concrete.
- the last thing we need is vehicle emission standards here. that wont fly, not everyone has a tesla or the means to charge electric vehicles
- The goal should be to create less waste and not throw money at harmful policies that only punish the poorer people in our community
- People still look to Los Alamos to lead on issues of scientific concern. We shoudl set an example for how a sustainable community can be run.
- Los Alamos residents have the resources to do more and they have more to loose in terms of the forested surroundings.

- Energy prices are only going to rise. We need to mitigate this every way we can, from fuel use to utility load.
- Los Alamos County has a surplus of funds that can be used to benefit the county instead of lining the coffers of our corrupt County Board Members.
- Los Alamos seems to lead the state in every aspect, why not reducing greenhouse gas emissions as well?
- Climate change is weak and mostly natural.
- It's Important.
- Should not be exactly like the state. Should take into consideration the area/geography/topography of Los Alamos County and adjust. Costs in Los Alamos are already higher than the rest of the state (building permits, etc). It would drive the cost of living in Los Alamos even higher than it is now. Taxes would increase also. We are already seeing hikes in utilities.
- I believe that Los Alamos is a symbol to northern New Mexico and should strive to stay on the cusp of advancement and change.
- Action needed beyond LAC's capability.
- I think we are a town built on science and innovation and coming up with innovative solutions to a global issue.
- Some families can't afford the extra costs associated with buying electric vehicles or solar panels to off set our carbon foot print. A lot of homes in Los Alamos are very old and aren't insulated very well. So those homes will use a lot more energy for heating and cooling.
- Those who believe climate is a problem and can be substantially influenced by human action should move closer to their supply chain; away from Los Alamos.
- We should be a role-model for the rest of New Mexico, because we have LANL as a fantastic resource! Also, the income in our county is high enough to support any required changes. Lower income people will need to receive help!
- It's difficult to take this seriously when those on top who tout climate change do so from their private planes.
- If we are home to one of the most innovative national labs - we should as a community lead innovation and technology that supports a long term sustainable way of living.
- Los Alamos is a unique community and it would benefit all involved.
- Los Alamos with its intelligent scientific community should set the standard for the state.
- We have more resources than other communities.
- LAC is primarily a scientific community. It has the potential & and capability to take a lead in trying to set an example for the rest of the state. We all owe this to the rest of the state.
- Los Alamos county is one of the country's richest and smartest people. We can afford to be leaders in sustainability.
- The cost of living in Los Alamos is too burdensome as it is. I don't think it would be wise to add extra "green" costs
- Los Alamos has always had the drive and financial means to excel and be at the top or near the top when it comes to these types of initiatives.
- Only by taking the lead does on par get accomplished. Taking the lead creates hope.
- LA should be pioneering the future of sustainable fuels.

- Solar array covered parking and when reroofing buildings use solar roofing material. Electric scooter depots each mile or 2 on main streets.
- I believe that the climate situation is dire and it is in complete ignorance of reality to think that the lives of humans are not in eminent danger if the green house gases are to continue as they are or get worse. I do not ask that Los Alamos county do more than the state asks of them, but I beg that we do at least that.
- As an affluent and science based community, we should be setting higher standards of accountability, and taking more aggressive actions to reach a more sustainable future,
- The federal government goal is more ambitious.
- It should have been the goal to reach that long ago. This is the county is at the forefront of innovation at the laboratory but the county infrastructure is not. The roads could be better maintained and the traffic patters and roads coming and going to LA could work much better to help the flow to and from town. The lack of renewable resources is unbelievable. There could be solar parking covers and car charging at most every county buildings. Places like the fire stations and newer county buildings that aren't going somewhere should have these.
- Los Alamos should be a leader in how to react to scientific information. That we are not is to our shame.
- As a community of scientists and engineers we should be a model of innovation
- Since you are wasting our tax dollars on community nukes you should spend some of it locally on projects that actually benefits us NOW.
- Los Alamos should be a front runner in setting example. We have a population willing to take these steps.
- Los Alamos County has more resources to be more ambitious. We could set an example for the rest of the state for what is possible and also how it can be scaled back so that more communities can afford to take climate change action. If Los Alamos County tried various initiatives then other communities can learn from us and there would be hope for a better future.
- We're one of the wealthiest counties in the state with a host of well-educated scientists. We should be able to innovate and lead on this front.
- I don't think the government should force the citizens to do something they don't want to do. Allow people to make the decisions on what is important to them.
- We are a county with more resources and people who really care about science and technology.
- smaller territory and more affluent population
- Electrification of the county will put a strain on all existing infrastructure. homeowners would have to do costly renovations and purchase electric equipment. the county would have to build a transmission line into the county just to carry the increased load. the county would have to replace all existing distribution lines in the county just to supply businesses and neighborhoods.
- We are the leader in technology and have the workforce to sustain. We already have a shortage of chargers in town and making more chargers attainable for charges and economical will allow those that commute to naturally change over.
- LAC has the resources and knowledgebase to do this.
- Mandates are difficult to enforce. Education may be a better path.
- .
- I believe that everyone should recycle and keep our environment clean and healthy, plant more trees and gardens and align ourselves with nature. Thats enough.

- It's best to lead by example. And we have more resources to do so than most other communities.
- Los Alamos is a scientific community with plenty of financial and human resources to lead the state and perhaps the nation in this area.
- Some of the brightest state citizens live here and we should be leading by example.
- State's goal seems ambitious.
- We're a scientific community and we should be leading the way to follow what science tells us.
- Los Alamos is a wealthy and well educated community that should understand the importance and be willing to make necessary investments. Although small, there is no reason Los Alamos should not be a leader in responding to the climate urgency.
- We all have to do our part. But, I am somewhat hesitant about regulations and mandates. I do what I personally think is important and that I can afford to do - walk to work, limit water and electric usage, solarize my camper, etc. But, I think there is a lot of low hanging fruit for the county outside of mandates.
- Los Alamos is relatively rich and should be a leader in the state and the country.
- We tend to think we are a community of smart people. Are we? How about using all that brainpower as an example?
- Because the people of this country are knowledgeable and forward-thinking.
- We are a science based community; we are an affluent community; we can and should lead.
- Intelligent community with many educated individuals who can help lead the way
- I believe this effort has a lot of community support. I know quite a few citizens are already taking measures in their own homes to reduce green house emissions through composting, solar power panels, induction stoves. Public transportation seems very popular along with biking.
- LA County is a wealthy county and we have the Lab as a partner in this so I believe we should spend the money and become the leaders we are capable of being. I also believe we owe this extra effort to our surrounding pueblos and downstream residents who have historically suffered at the hand of the Lab and its experiments/unintended consequences of their work.
- The state goal appears ambitious but accessible. So I feel Los Alamos County should keep pace.
- To many variables and doesn't address the root cause of worldwide population
- The science is abundant and clear: it is critical (and most effective) to make maximum effort ASAP to reduce GHG emissions. A 45% reduction in emissions by 2030 is too little too late. Temperatures are already shooting up locally and globally, and the most cost-effective (and life-saving!) approach is to do as much as possible as soon as possible.
- Right now the politics is running ahead of the science.
- We are the most educated county in NM, perhaps the US, so we should be able to bring change to our own immunity. We also have a higher Democratic than Republican base.
- Need more information
- The state goal seems ambitious and if Los Alamos County can keep pace, than good on us!
- We can do at least as well as the rest of the state, probably better.
- We have many resources at hand. We should find ways to safely and responsibly utilize these resources and not go with only one at the exclusion of the others. There are benefits to using a mix of resources and we have the capability to learn ways, utilize our combined resources to come up with a workable plan.
- That is a respectable goal in the given time and Los Alamos has the resources to demonstrate this can be successfully achieved.

- It's the right thing to do. And, cost investments should be paid off longer-term through improved efficiency.
- There are highly educated people in the county and if they were willing they could figure out how to reduce their individual carbon footprints. But this would cost money, so I'm not convinced it would be popular (even though this is a rich county overall). Plus, these same minds could make suggestions for improvements in general. Requiring better building methods, for instance, or giving up on so much "convenience", such as bottled water from the store and plastic shopping bags.
- Politics is the driver for such programs, not science. The politics will change, but any adopted regulations or policies will remain, and likely be devastating. Los Alamos County representatives do not listen to the concerns of the community members. They seem to always find a way to get what they want, even if the constituents have voted against previous measures. The necessary infrastructure improvements will not be achieved efficiently or effectively and projects will fail. The only near-term change that may be beneficial and could have a positive impact would be to allow homeowners more leniency in installing solar panels.
- See response to question #8
- It is our duty to be a pinnacle beacon of what humanity can strive for. While it isn't on a grand scale like other major cities we can show in this small collective what we can do to persevere if we put our minds to it and hopefully spread this idea out to everyone else I know that we have an abundance of resources and other things that other place lack but we can really still show that with the proper government funding and community backing and such we can achieve anything and everything to better our world
- Because the electrical system can not handle that much load that it would require that soon without sufficient upgrades to the system.
- I think the transportation system or route needs to be looked at pushed through for shorter commutes and reduce the number of accidents coming up the main hill. Have alternatives to get evacuated off the hill in an emergency.
- Nothing will be done to change climate change, unless it is required , and punished if not done.
- The states climate change action and policy is aimed to fund and make rich the corporations who manufacture the "Green Energy" products. The "GREENEST" energy of the future is nuclear. Until that is on the table to be considered, the policies are a BIG FAT LIE.
- Individual contributions to climate change are trivial compared to business cases and should therefor be of no concern to the county.
- Please refer to answer on question number 7.
- I don't know enough about the target and the date.
- Our housing infrastructure here in LA is old and needs major overhauls to meet modern conservation standards. Most houses are not properly insulated or heated causing waste and inefficiency every winter. Most houses have electrical safety problems (old wiring and cotton/paper insulation). The example that comes to mind here is that if you are driving a car from the 1950s. You do not need to upgrade to a brand new electric car right away to help the environment. Simply upgrading to a 2010 car would be a massive improvement for safety and emissions. The same can be said of housing here in LA.
- Efforts reduce greenhouse gas emissions should have been undertaken decades ago, but they weren't. Now we need aggressive action.

- Los Alamos is a county full of scientists who should understand the potential catastrophe related to climate change. As such, they should assist in leading the charge to not simply be "good enough", but better.
- Los Alamos county is the epitome of white privilege. People in Los Alamos need to accept that their shit stinks, that they don't know everything, and that a lot of white people in other places have a valid "lived experience". You don't have to be a BIPOC to have a valid reason to hate the 1%.
- We understand the importance of reducing our consumption of fossil fuels and we have the resources to make the transition.
- Aging houses, lack of professionals makes it hard to help create for our privately owned houses
- It is a fine goal.
- Don't get pushy. Make opportunities to improve but no mandates without county population approval.
- I think the 2030 goal may turn out to be overly optimistic, but Los Alamos should participate in the state effort, not try to reinvent the wheel.
- Not sure that is should be a target.....need more conversation on expectations and impacts to families.
- LANL High per capita income
- As the richest per capita county in the state, Los Alamos should be leading New Mexico in identifying, developing, and implementing regionally appropriate climate actions and facilitating the larger state and regional climate actions.
- I just told you
- I think it should be everyone's target.
- it will be a hard sell for some in the community, so it's better to be on par than ahead
- This county is filthy rich compared to the rest of the state and has the education and resources to be a leader in change.
- Climate is going to change regardless, we shouldn't do things that will tank the economy
- Because the Climate Change science is filled with Junk Science to promote a tax scheme.
- It should not be our Target
- As a community of scientists, we need to lead by example
- 50%
- Los Alamos should be a leader in climate action.
- Los Alamos County should be TRYING to get homeowners to install solar instead of creating roadblocks to keep this from happening. It should not take MONTHS to get a permit from County on this.
- unintended consequences from extreme reactions to climate change hurt us more than the original problem
- It would benefit the County as well as the surrounding area and is going to be a future requirement anyway to reduce our resource usage.
- I need to understand how the state's target was set; what science and economics are the foundation for setting this target? What are the science and economics for Los Alamos and how do they compare with the state's?
- We have money that others don't as well as smaller geography to deal with

- Government's role is to protect the Liberty of its citizens. If citizens do not voluntarily decarbonize, a likely reason is because the costs - economic or otherwise - outweigh the perceived benefits. This survey assumes that climate change is catastrophic, but fewer people are threatened by climate today than ever before thanks to human engineering and climate mastery. It also assumes the only solution is to cripple its citizens' access to affordable and reliable energy. This has far more consequences to the welfare of Los Alamos citizens than climate change ever will.
- We need to be better neighbors to the rest of our state. Working alongside them for a common goal would help.
- Requirements like policies for many green energy can cause problems if done in a manner which causes people to run out and buy new appliances. Not all of us are considered rich.
- Saving the planet!
- Water is needed for life, as is CO2. Stop pandering to politicians talking points about reducing green house gases without first educating your self on what a "green house" gas is... water is the worst culprit, but no politician/scientist is going to admit that fact.
- Again... no actual statement of actions. Cannot determine impacts or targets. Targets are fine. But eventually, the rubber needs to hit the road. Not just pie in the sky targets. Los Alamos County has a national nuclear lab to operate which requires huge amounts of energy to run. Without this lab, there is no LA County. We don't have area to build housing, so we don't have it to build acres and acres of solar farm and we don't want wind turbines everywhere (ugly). Build us a nuclear power plant and then go from there.
- We are one of the richest and most well educated county in the US.
- I think this is a reach goal, however feel that doing more than this is important, tho it just may not be possible
- Climate Change is an existential threat to humanity.
- We should lead because we understand the consequences.
- The science is not well done and is fraught with controversy. Conflicting peer reviewed papers are not published. Scientists are black listed and shunned. Climate change has become a mantra and close to a religion it does not stand up to scientific principles.
- Los Alamos is the most prosperous county in New Mexico and unlike most communities, has the financial and technical resources to implement such a plan. Los Alamos should lead the State of New Mexico on climate change due to it's resources and relative small area.
- It is do-able.
- The question is whether the target includes the lab or not. For the county alone, it would be good to the trade-offs of being more aggressive than the state as Los Alamos is a fairly isolated and small county.
- State goal is an average impact of all communities within it's boundary. Because we are the wealthiest county, we owe it to the rest of the state to offset the poorer communities that will have a harder time meeting the state's goal.
- The target needs to be effectively zero NET emissions and should be the goal from the outset. Anything else will just not solve the problem, waste time, and ensure the waste of vast amounts of money.
- Spending enormous amounts of money to reduce carbon emissions will have no measurable effect on temperatures. Better to spend on reducing methane emissions. Spending money on adaptation is vastly more cost effective.. There is no evidence that severe weather events have

become more frequent or more severe. The planet has become greener because of higher CO2 concentration.

- Force feeding change does not have buy in from residents. Prepare the infrastructure first so the change is an easy choice for affected residents.
- LA should not mandate anything, leave that to state and feds.
- Recognize that individuals can help with some life-style changes.
- The State could meet this goal by shifting their forest management to stop setting the forests on fire. There were 4 wildfires started by controlled burns in 2022 in northern NM. Also, stop making it impossible to live. We're not all trust fund babies.
- We have more resources than any other county in New Mexico, and we keep giving away land to whoever is friends with a County Councilor. Seriously, if we can subsidize the Smith's Marketplace, we could put some solar panels up in the parking lot.
- Los Alamos has the educational base to provide expertise and practice for technologies. With the geographic location, we are ideally situated to enact technologies to reduce greenhouse gas emissions.
- We are a community with more resources than the average community in resources. We should lead
- National Security is LANL's core mission, and the town of Los Alamos must support this in ways the lab cannot.
- Our low population and small size will not have a substantial impact on climate change, regardless of what we do.
- More education regarding recycling and encouragement to do so. Encouragement for LANL employees to use the bus systems to reduce emissions and reduce traffic on our limited roads. Increase trim cart pickups during high brush and limb removal times.
- Los Alamos has the talent, funding and support of its citizens to make a big impact.
- Because we are supposed to be smart here
- Climate change is due to global influences (pollution). It makes no sense to make decisions that have adverse financial impact on some residents 'out of principal'.
- I believe Los Alamos has already done a lot in this regard, more investment would be a waste of tax payer dollars
- More free market solutions and principles; less government regulation
- Los Alamos should not have a target. The county may have a target for itself, but it is inappropriate to be dictating to residents what car they drive, and where they get their heating fuel. It is also insensitive to the culture of northern New Mexico.
- Current climate change is natural and will only be impacted negatively by actions to control atmosphere
- The majority of Los Alamos County is blessed with financial resources greatly above the majority of communities in the state. Frankly, we can afford it. The community was founded as a way to support the pushing of scientific boundaries in face of the existential threat of fascism. We should carry on legacy in our response to this generation's existential threat, climate change.
- Hosting a national lab should mean that we are working toward helping the future of our community and planet through science-based data and are helping implement changes to reduce climate change impact

- action this decade is imperative to mitigate temperature increases and adverse on people in Los Alamos and globally
- We have enough trouble with affordable in this very expensive town. DICTATING change has unintended consequences.
- We have an educated, scientific community that can understand the need for changes--most of the changes, like driving EVs, are affordable and FUN
- We claim we're a science-oriented town full of highly educated people, so we should be acting based on the science. We're also much richer than most counties in the state, so we can afford to try new climate-friendly technologies before our poorer neighbors.
- We have the resources and an educated population that understands the need and responsibility to make efforts towards a sustainable future.
- If this educated and once practical community cannot offer examples of radical reduction and transformation away from fossil fuels, we don't deserve to live here.
- We are a leader in the DOE national labs, to not be a leader in climate change resiliency would be an embarrassment to our scientific mission and our position as a leader in international scientific research.
- The state target is extremely ambitious, and just meeting it here would take a major effort. We have more resources here than most communities, and funding should be easier.
- More educated community with and more economical resources than majority of New Mexico
- The State's target is unrealistic unless the State is willing to fund the costs involved with attaining that goal. Individuals in this state cannot afford the financial burden of that kind of goal.
- Reduce the population.
- Because the DOE lab is here. We should be an example to other communities
- China is building 150 coal fired plants and have plans for 250 more. India is doing similar things. The US has reduced its carbon footprint substantially. The costs that will be forced on us by the state are untenable.
- LAC has the resources and knowledge to be a leader in this realm. We can take a strong stance and lead other communities.
- We have the money and brainpower to be a leader
- The state of NM goals are a pipe dream and will only lead to less effective actions taken too fast. NM 2018 GHG emissions are 50% higher than 2005 which means the goal calls for a 63 percent reduction from 2018 levels. That's preposterous. See: https://cnee.colostate.edu/wp-content/uploads/2020/10/New-Mexico-GHG-Inventory-and-Forecast-Report_2020-10-27_final.pdf
- It makes sense to me that Los Alamos county should keep pace with state guidelines
- That goal is a politically based stunt, from a third world state. New Mexico's oil and gas resources are all the state has.
- Because commuting is emitting massive amounts of carbon and services are needed.
- What's good for NM is good for Los Alamos County.
- By its nature, Los Alamos is and should be a leader.
- I'd prefer to be more ambitious but I'd like to be pragmatic, as well. NM's targets are already relatively ambitious and we seem to be trying to keep pace with Calif., as well... at least I think that's the case.

- To many questions about supposed sustainable practices- how to dispose of wind turbines, electric capacity and reliability and EV battery disposal. Lithium production
- 2030 is already too far - step it up
- It's necessary, we experience last summer, we have no time and need to act now.
- Los Alamos has a responsibility to show that alongside LANL and its environmental impact, sustainable measures are crucial.
- We can't even solve the issues we're facing now that are of more importance to the community such as aging infrastructure, extremely high cost of living, housing, affordable housing, etc.
- To believe we can control the different climate cycles the earth goes through does not make any sense!! A true study of the different historical periods the earth has gone through (ice ages, warming ages, etc) shows us people had zero impact as these periods happened. A number of Nobel Laureates have testified to this. Computer models are not real science. They are just theory's. There are many examples of their failures. In just the last 50-60 years there have been many doomsday proclamations that have all been lies and failures to come to pass. Climate Change is a big grift for government money.
- LANL partners with the LA County. Since LANL is a national laboratory funded by the US government, LANL and the County should promote utilization of emerging technologies to reduce greenhouse gas emissions.
- Los Alamos County has the scientific acumen and talent to lead in climate action
- Los Alamos is a national leader in many aspects with LANL being located here. We should also be a leader in climate action. This would benefit not only Los Alamos but surrounding communities and the region as a whole. As climate threats continue to increase, we should be taking the initiative to mitigate these impacts in any way possible.
- We have so many scientists, high wages, and a Department of ENERGY facility here!
- The DOE should be leading the country's efforts to transition to clean energy sources and to build resiliency to climate impacts. With a flagship DOE lab as the center of town / business, Los Alamos should also be leading that charge.
- We are a rural state with many outlying communities that are poor. We need to provide people with energy options that will not rob the poor of cheaper energy options they can afford. We do not live in a country where you can "mandate your agenda" if it abridges the US Constitution.
- The state has unrealistic expectations. Our state has many rural areas that will suffer due to this agenda. This state does not have the infrastructure to support "an all electric" agenda. The poor, of which there are many in this state, will suffer.
- I disagree with the premise, being the reduction of CO2 by artificial means. Nothing absorbs CO2 better than vegetation, and yet the county wants to persuade me than at least some (there is no reason) efforts should include artificial solutions.
- This is a political plot. We should take care of the people and environment of the county.
- Making more "programs" increases cost and generally sees little actual climate benefit.
- We need to be smart. Not ambitious. Do good programs, do them right and show impact. Don't rush and do stupid things and waste money/time.
- These goals are mostly derived from political science rather than developing a plan based upon all scientific data.
- Keep pace or even exceed
- Emissions are currently at a reasonable and sustainable level. Pursuit of extreme goals cost too much and negatively impact quality of life in our community.

- Los Alamos Co has the funding and the vision to be a leader in the state, and across the nation. We should leverage our incredible resources (including the talented and highly educated residents)
- Taxpayers should not fund a bogus agenda.
- Ridiculous focus when infrastructure and small business support is much, much more important.
- LAC's target should literally be nothing. "Greenhouse gas" is a myth, an you are stupid enough to believe it. CO2 and Carbon are NATURAL AND NOT THE PROBLEM!
- Few places are doing enough. Some places need to step up.
- I don't think Los Alamos is the problem when it comes to emissions in New Mexico.
- Los Alamos has been a cultural Icon for one really big reason for quite some time. I think that it would be powerful to become a new cultural Icon for the whole of the world in a way that is restorative, sustainable, and culturally accountable.
- I feel like we're not really the problem.
- As a science community, we should be a leader in reducing carbon dioxide impacts in the state.
- I don't trust county government, which has taken survey after survey, even gone to the expense of an actual county-wide vote on topics, ONLY TO COMPLETELY IGNORE citizen output. The county also refuses to recognize that a portion of the town's population does not work at the lab or pull in outrageously high salaries. I want solar panels and other such devices, BUT I CANT AFFORD THEM. If the county starts to throw its weight around, I will be forced to move. The county has been hit in court proceedings for its failure to deal above board. That was with a judge watching. I can only imagine what bullying will take place in this area of governance.
- Please, no more regulations. People are transitioning to less polluting as they replace appliances, vehicles etc. forcing rapid replacement just increases pollution as more trash is generated quickly.
- Because it's nothing but a money grab
- Cannot control the weather or many natural disasters.
- Because data shows that most green energy investments cost more than they save, and place unnecessary and useless burdens on the taxpayers. Be good stewards of the environment, but that's it. Climate change is a hoax, why are we going down this money pit?
- The same as New Mexico. That wasn't a choice.
- Any law have to be enforced, otherwise it doesn't make sense
- It should not be.
- To continue our good life and exhibit how things can be done.
- because our County govt is too stupid to know what to do!
- Climate Change is a money grabbing hoax. Obama and AL Gore bought seaside mansions but want us to believe in oceans rising from melted ice masses.
- People participate more in changes if it is voluntary rather than forced.
- because it is the right thing to do
- Los Alamos has more resources than other counties so can afford to do more.
- We have the income level and intellectual capacity to be frontrunners.
- These goals might sound extreme, but from what I have observed since I moved to LA county, existing practices are far behind those of other cities and municipalities where I have lived previously. Since more than half of LANL employees live outside of LA county and commute into

town, I wonder what fraction of the emissions target might be focused on improving efficiency of commuter traffic and the like. It would be informative to know what fraction of emissions are attributable to particular sources, how much can be gained from improvements to vehicular emissions, residential housing efficiency (HVAC, lighting, etc), and other contributors.

- Warming is definitely taking place, but virtually all the horrible predictions of the consequences of increased warming are provably false.
- Our county needs to focus on more pressing issues and evaluate the real cause of "climate change"
- Not having a "equal" check box for the state goals makes this a biased survey.
- Our county is so small that any action will have a negligible effect on climate, but potentially negative effects on our residents.
- In large part people living here have the resources and education to implement innovative and model solutions. We should lead the way as a National lab community dedicated to science and innovation.
- It should not. We run empty buses all over town, burning up fuel, tearing up the roads, paying people to do useless work.
- The over regulation of life in Los Alamos is already showing uncontrolled cost inflation for things like basic utilities with reduced services to the community. Furthering this trajectory in the name of climate change will only erode quality of life for those who live here and quality of service for those that pay taxes here
- Los Alamos is the smallest county in the state
- The State's goals are not realistic!
- I have a feeling that 45% over 25 years will be the natural impact of technologic advancement. Coal power is naturally waning and many things are naturally becoming more energy efficient. I also think that the first big cuts will be fairly easy while cutting more will get progressively harder.
- Because, local action will not affect our local climate...don't be a fool
- Los Alamos has a well educated population, with good technical skills. We should lead the way here, and find the best all around solution.
- This county is already expensive and ridiculous.
- The data does not support the State's position.
- NM goals are set by politics
- I never said I thought this should be the county's target, you did. The bias of this survey is very apparent.
- A few people want to feel good about themselves and they think they know how to spend other people's money better than the person who worked for that money.
- Because greenhouse gas emissions are not a problem. They are greening the planet and making it more habitable
- Climate will always change. Man's response needs to be to assure we have the resources (\$, energy, food supply, etc.) to continue to live comfortably and expand the progress of civilization. Don't shut down our economy and our society for these fantasies.
- We are a more scientific and data based population that the state as a whole

- I believe that as the birthplace of the first atomic bomb, and now a center of top scientific research in the United States, we should be a leader in taking action towards climate change, and be a city run entirely on green power
- We are known to be an educated aware community.
- People are more willing to do things they agree with and can afford.
- Folks don't like change, so regulation is necessary.
- Ambitious action on CC increases the cost of living and makes our community less friendly and less appealing. I am particularly concerned about burdensome costs placed on less wealthy and fixed income residents.
- People need to wake up and see how much propaganda they are being fed.
- Utilities are already high. Need to bring about change in a positive way and not make people suffer or the will not support it.
- Currently, most climate action steps require a higher income or money up front - invest first, incentives later. Middle and lower income families really don't have the ability to do that.
- That's a difficult question. We have such a high poverty rate. In the 80's the federal government did a study that suggested that electricity is cheaper than natural gas. That study was outdated at the time! Electricity is at least 3 times more expensive than natural gas. So mandating that we move to electricity is not favorable for the poor! The government can't always take up the slack and pay everyone's bills. There has to be a happy medium. With all the scientists we have at LANL, can't they work on some sort of filtration system for homes with natural gas and for cars that run on fossil fuel? I personally cannot afford my own electric bill much less an electric car! I'm nearing retirement like many people in the workforce. Paying high electric bills and being required to buy an electric vehicle is not realistic. There has to be other solutions. We all know electricity is NOT reliable, natural gas isn't either. We need to be able to rely on one or the other in outages. One other thing, maybe bring back arbor day festivities. Make everyone plant a tree or two, release oxygen into the atmosphere. It has become a concrete/asphalt world, which adds to the heat and displaces oxygen and water (flooding)

Question 11: What TOP THREE STRATEGIES do you think the Los Alamos Climate Action Plan should focus on? (Choose up to three)

Other (please specify)

- We desperately need to coexist with our wildlife. Cats should be confined. Windows should have some sort of treatment so birds don't fly into the windows
- None of the above
- Get some real scientists and critical thinkers to get the facts straight
- STOP THE WEATHER MODIFICATION
- None of the above should be legislated or forced. I do many of the above, but it is my choice, not to be governed to do so
- None of these should be forced on residents
- Help NM get a nuclear reactor
- None of the above. County government should be reduced. Citizens choice of energy use should not be infringed.

- The only thing I support is improving and expanding bike lanes since this town wants to add more housing units than the infrastructure can support and traffic is already insane during rush times.
- All of these come with significant costs. In a time where interests rates are still truly excessive and many people are still struggling, see the food bank service line in Los Alamos, each of these actions will come at a costs too high for enactment by County Council.
- Stop letting the popular vote decide specific policies we aren't knowledgable in, and hire experts to determine and enact the most effective solutions.
- switch from using gas sources for electricity and switch to something more reliable and efficient than wind or solar. nuclear is an exellent choice its greener than solar panels and batteries.
- Transition to nuclear power for electricity generation.
- go nuclear
- Reduce staffing levels
- Consider a community E-bike share program. and further improve on bicycle and pedestrian infrastructure, especially to LANL
- The County shouldn't take on contrived issues or reduce freedom.
- All of these to some degree, really
- All are a waste of money and will only increase utilities costs
- What ever you do decide to move forward with, start in house (LA County owned) and see if you can even make that happen 100% before you even think about pushing it on to the Community as a whole. If you as a county government cant make it happen 100% don't expect it to happen with in the community. Lead by example!
- Transition the county to electric and alternative fuel vehicles.
- Reduce the necessity of Commuters needing to come up the hill everyday. i.e. Some remote work days and some days in the office.
- LAC should focus on other important community issues: roads and traffic, environmental damage from housing expansion, and support for local businesses.
- N/A
- plant trees and other photosynthesizers which cosume CO2.
- More EV charging to help promote zero emissions commuting
- Transition to clean, carbon free energy sources(nuclear not wind,solar)
- Less people living in the community. No More apartment complexes.
- Switch to Nuclear power source generation. more reliable than solar or wind. it is a greener energy source when you look at what it takes to mine materials for each and its output and efficiency.
- Invest in expanded/appropriate infrastructure for climate extremes.
- encourage telework as much as possible, which will reduce carbon emissions
- Forest Management with prescribed burning
- Improve resilliance to the inevitable increased probability of wildfires that will result from increased drought and temperatures.
- Incorporate solar in our community on roof tops and in parking lots. Require all new residential, commercial, and county construction to include rooftop solar.

- Convince me this is real. everyone responsible for this survey sell your car and never fly anywhere again. Also do not run your heater this winter fossil fuels are evil
- Stop
- Make the two new schools be energy efficient...solar, etc.
- Encourage people to grow their own food
- do nothing, as everything government touches gets fouled-up
- None of the above.
- do not encourage growth with out assurance of increase water available for residents
- Partner with the Lab to ensure strategies are aligned across the county, not just for the county government and private citizens
- WFH DAYS
- The county could go back to collecting recycling every week. We certainly didn't see a decrease in our bill when that service moved to every other week.
- Double down on transportation: Transportation is a major thing in this county. After LANL and County's own choices for facilities & operations, I want to focus entirely on transportation. Too many cars, not enough options from transit, cycling and walking feel like I'm taking my life into my own hands as monster trucks fly past me well above the speed limit and swerving in and out of bike lanes.
- No added burden to citizens is required.
- What a useless bunch of words! You sound like the Seattle or Portland City Councils! Look at those failed enclaves of "Progressive" thought for an example of how not to run a city/county. If you want a city where normal people fear to tread but drug-addled zombies are idolized, come visit these cess pools on the "Left Coast".
- these are all good ideas
- Environmental sustainability, contributions to climate change as well as potential impacts of climate change should be part of the review for every process or action including local codes. Failure to include those elements would be irresponsible.
- Support nuclear power
- do nothing
- Transition to nuclear energy or hydrogen if anything. Encourage high polluting countries to reduce emissions
- Plant more trees
- Get rid of the bus system. They run around town with no one in them and replace with an on demand system like Uber. These buses tear up the road which have to be repaired more often with fossil fuel derived products. The buses are burning up fuel without a purpose, it costs money to operate and we have to pay people for useless work.
- Encourage population control by e.g. taxing more for families over 2 kids
- decrease industrial use of utilities
- Stop interfering with citizens lives. .
- Nuclear power
- Stop wasting money on this
- Our goal needs to be NET zero carbon emissions, which although it can and should include carbon free energy sources, it does not need to and probably should not totally rely on them.

Many of the choices are drops in the bucket so to speak and really don't speak to the really solving the problem.

- Build more housing so fewer people commute into the county.
- People do what they can afford.
- Get rid of the LAPD police trucks in favor of smaller police vehicles. Get them Priuses or something. We're not Albuquerque, nobody is trying to run away from the police here.
- Reduce emission from LANL out of town traffic and in town traffic by encouraging use of the bus systems
- Continuously try to identify climate threats that have been missed.
- whichever of the County-owned-assets options (buildings, consumption of goods, buses, or energy source) has the greatest carbon footprint
- These options are all seeking to confirm your assumptions that heavy investment will be effective and make a difference. Each of these come at the cost of people in our community struggling. How about funding a kitchen facility to feed the needy kids of the county and provide better meal prep facilities to the schools new lunch programs. That will make real impacts.
- reduce county spending
- All of the above, of course!
- We really need to include nuclear in the transaction. Solar, hydro, wind, and nuclear are by far the safest and cleanest sources of energy in the world right now.
- Reduce consumption and waste by discouraging people having large families.
- None of the above
- Transition to nuclear power (it's weird this was omitted !)
- None of the above. I want my tax dollars to go into basic services, not climate change
- xerioscaping
- Educate people about federal tax incentives for green intiaitives such as appliances and solar
- Focus on Proper forest management and turn LANL into a tourist destination by moving the institution to a more appropriate site.
- Instruct the community to clean plastics from milk and juices before recycling, encourage separating recyclable items from non recyclable items, include glass specific system of collecting at residences.
- Disband and return all money.
- No need to do anything
- Transition to nuclear energy
- None
- The only thing we should be doing is being good stewards. That's it. Picking up trash, not wasting resources. Quit trying to force people into believe this garbage. I am concerned abou the cost of all of this. Because no matter what we do in LAC will not matter globally, as long as China does whatever it wants.
- Increase density of neighborhoods (remove parking minimums) and add closer amenities and businesses
- I don't think you have 3 decent ones. I selected Reduce water consumption because it wouldn't let me keep going.
- Force commuters to carpool or use public transport.

- None
- None.
- Support carbon free nuclear power generation.
- Stay away from pushing anything electric fueled by coal or gas.
- improve wildfire safety by educating and enforcing defensible space and thinning/managing public and private lands
- X
- None.
- Encourage general electrification of homes and energy saving strategies (heat pumps, new windows, etc.) through property tax incentives
- Let market forces direct sensible solutions. No government mandates.
- Stop wasting my tax dollars
- Look at policies critically
- How about some clear research with some clear answers about how these measures will improve anything?
- Change county electric system policy to encourage solar on homes
- See selections above
- I don't want to see any of these forced on our residents.

Question 12: What do you see as significant BARRIERS or CHALLENGES to implementing these strategies? (Open response)

- Humans won't do what is right
- Cost
- Adoption by the public
- political polarization caused by social media -- to address this, we really need the opportunity to discuss the best course of action with our fellow community members. This allows us to recognize the collective humanity we all share and puts our best foot forward to ensure that a polarized "left-out" minority doesn't hijack climate strategies in the future.
- Cost, cost, and cost.
- too many brainwashed people, not enough critical thinkers.
- LANL, POLITICIANS
- Increased high density housing.
- Misinformation. Short-term economic self-interest.
- The county's push to develop more housing at the cost of open space and undeveloped land will result in more people, more vehicles, more energy use while sacrificing the undeveloped natural areas. A better approach would be renovation and/or replacement of existing developed properties such as the Marimac Center to make them more energy efficient and sustainable while working toward the goal of providing more housing.
- Availability and affordability
- Don't force implementation of these strategies.
- Forcing your ideas on residents

- People are very misinformed about the green agenda, about climate change and human activity as a cause, about the big causes, about EVs, about energy in general, especially energy security.
- Grid failures.
- Government.
- Lack of concurrence among residents that the long-term benefits are worth the short-term costs.
- Investment of effort required from individuals.
- Willingness to change quickly. Engaging all ages, communities, and professions to tackle the climate change battle.
- None since there should be no strategy.
- A notable fraction of the population that would rather not deal with it.
- Cost and resources
- Myself and other like minded freedom loving individuals
- Money/investment, education/buy-in from climate change deniers - including those on Council and County boards.
- Many people (e.g., senior citizens who do not have local lab based retirement incomes) simply cannot afford to replace their gas fueled heating systems with electric systems (see #13 next),
- Human behavior is the greatest challenge to change. We are unlikely to change our long held behaviors until not changing becomes more painful than changing. But we should try anyway. Life can only thrive in a narrow temperature range. We need to try everything to reduce GHG emissions
- People like their green lawns. Also some people have already made up their minds on climate change and are resistant to change.
- Some people's unwillingness to change.
- Money. I recommend Council consider the average day-to-day citizen and not specific special interest groups. The board or commission members likely hearing these results are likely LANL staff or have sufficient funding to make decisions without fully considering the real impact to teachers, workers, and others without incomes over \$70k a year in Los Alamos. Wouldn't better infrastructure such as roads be money well spent? Wouldn't providing more elderly services be money better spent? Wouldn't giving some County worker a better costs of living wage be money better spent? Spending money to buy a whole new fleet of electric vehicles just to meet State or our own standards seems ludicrous. Wouldn't one at a time be better?
- People need results for payoff. How to show that measures work?
- People's buy in and participation (having money incentives would help)
- The short-sighted views and big-oil propaganda that are prevalent in all sources of media. This will require true dedication as it will be received poorly by a large portion of the public as climate change is still a political issue regardless of the facts that it is occurring and the effects are indeed negative for human life currently and our future.
- Buy in for change.
- the power grid can't sustain all the electrification we need to modernize our electric grid.
- Citizens need a clear understanding of what our goals are and what we need to do to achieve them. People here don't even know what to recycle. After all these years, they - the ones I know - will put anything paper or plastic into recycling. Dirty Kleenexes and paper towels and anything made out of plastic.

- The power grid and electric cars. The entire grid needs upgraded before the cars. Also going to green power or the charging the electric cars is redundant.
- Hopefully the voters want to stop paying for feel good, no effect initiatives
- Ignorance. Nihilism. Climate doomerism.
- The fact that anything implemented will be like a drop in the ocean. Especially when compared to China and Indias emissions.
- High costs.
- Anti-nuclear bias
- Misinformation and egos.
- Costs, support from decision makers, resources of building/ infrastructure
- The vocal minority who deny the problem.
- County Council is ineffective. Staff just justify their positions and spend money for consultants, etc.
- political opposition to doing anything to address climate change at the County level
- Foolish prioritization of carbon emission reduction. Reducing carbon emissions in Los Alamos will have zero effect on global warming. Reducing energy use, conserving water, and preserving green space will actually improve the quality of life.
- County bureaucracy
- Buy-in from residents. \$\$\$
- Cost and politics. These are the two things preventing us from saving our planet everywhere and why my children will likely not have a planet to live on.
- We need to move beyond being inconvenienced and take action because it is desperately needed
- County communications with LANL, in order to better interface public transit and trails, and housing on LANL properties. Both entities have many goals in common.
- Public transport for non LANL is poor. Especially between Los alamos and white rock there are few options.
- Cost and life style impacts.
- Their based on bad science.
- Political motivations from right-wing
- The only purpose of climate policies are to take away personal freedoms
- Community is to remote, infrastructure is not in place to make it a reality. None of the renewable options have paned out, and in a few years its all going to back fire on us a nation. don't put us in that same boat. 90% of all recycling goes into land fills and is not recycled. Don't believe it? do you job and follow LA's recycling through 100% of its journey and see for your self.
- None
- Money is being wasted already by the county in budgets and personnel. Cut those and maybe there will be money to fix things.
- Elderly members of the community do not believe there is a problem with availability of water,
- Lack of awareness of Technologies that care in our own backyard that can have positive impact.
- We should have started changes long ago. Too much too fast may fail.
- too expensive. the cost of living here is already sky-high. EV's are not the way to go, they are a myth. they use just as much energy in mining and production and cost too much

- - Bureaucracy that can't figure out bus drivers won't hire on until it becomes an actual career instead of part-time low pay work. People are done with that. - Building inspectors that are overloaded and poorly educated in modern sustainability practices. - Planners that are poorly educated in separating motor vehicles from bicycles and pedestrians. - Most older homes have 50 amp service. Prevents installation of heat pumps. Figure out a solution other than a loan program.
- Pretentious and over indulgent lab workers who think it's too difficult to support strategies.
- county takes forever to permit for solar panels! More people would go with this option if county didn't drag the process out
- Money
- limited land space for things such as solar farms
- There is plenty of ignorance on this subject. There also exists biases against positive climate change, possibly remnants of older climate change propaganda.
- N/A
- Individuals unlikely to do their part because it might be uncomfortable or cost a little more, or because they simply don't think their daily actions affect everyone else. And money. These things cost money.
- Money and peoples way of thinking on the matter.
- Drinking the kool-aid of panic and group think that "climate change" is a crisis.
- Education
- Disinterest on the part of too many people; hostility from some people; not understanding the real cost of not acting now; being uneducated about the many different issues that come with climate change.
- resistance from community members who do not "believe" and costs
- Old infrastructure all over Los Alamos.
- Political will
- Pushback from gas and oil promoters to solar, wind, and geothermal production.
- Other residents thinking action against climate change is a waste of taxpayer money or not believing climate change is real.
- Cost
- None.
- The commuter culture is so difficult to overcome.
- The elderly population and transplants present a barrier to progress.
- Humans seek the easiest thing. It is easier to get in a car and go then to walk to a bus stop. Make alternative transportation the easiest thing.
- I believe that ignorance and apathy towards the situation are huge barriers. It is to my understanding that Los Alamos is a very financially well-to-do county and can afford to implement changes that will support climate action without further need to tax the citizens more than they already are.
- There are many people who do not believe in climate change and/or do not want any government regulations to mitigate this problem.
- Getting people to change their current behaviors.
- Lack of buy in from county council

- Cost, and entrenched thinking.
- Religious attempting to bring about the end of days. Oh, and of course money
- County council and BPU
- public education on 3 Rs improved infrastructure for alternative transportation building improvements for energy efficiency
- The funding it will take to implement any changes
- Limited spaces in Los Alamos County to build new places, existing spaces have very high rent that is expected by landlords who charge the labs extra as well.
- Slowness of government. That not all of these can be government sponsored, some seem better suited to bottom-up campaigns. Lack of access to contractors to make buildings more energy efficient (especially for individual homeowners/landlords who aren't putting out million-dollar contracts to bid).
- The fact that some people do not believe this is an issue.
- Misinformation from climate extremists.
- The only Barrier as always is money.
- people's indifference
- people are afraid of Nuclear.
- Cost and real estate to put the chargers. Technology to charge faster and vacate the spaces when done charging.
- often costs more
- Resistance from the climate change deniers.
- Cost and community willingness to change
- .
- Undue and unjust taxes imposed by climate change policies.
- People and denialism.
- Community education requires a long term strategy to change behavior. Financial resources to make buildings more energy efficient may take community buy in; and agree that telework is highly effective at reducing carbon emissions. This requires buy in at upper level management, which seems to be an issue with some.
- Housing, hopefully improved by allowing taller structures. We need to conserve energy and water by not pumping water up to the ski hill for recreational snow making.
- Residents do not have the funds to pay for the increased costs associated with climate change initiatives. there are always unintended consequences to these programs
- The citizens. :)
- cost
- Cost, political pressure, public opinion
- The cost of electricity will go up significantly if we are 100% solar wind and geothermal. Also, this doesn't address battery storage which has its own carbon footprint when the batteries are out of age and no longer usable. Also, you can't mandate what people eat.
- Money
- Entropy. The idea that we've always done things this way. And an unwillingness to actually learn what is now in front of us...
- Resistance to change, cost

- A big disconnect between the lifestyle choices that people are making and the climate cost of these choices. People in my neighborhood (Western Area) are more vehicle oriented than ever and drive distances they could easily walk (a couple of blocks). Kids are driven everywhere, then get their own cars in high school and drive everywhere.
- I believe it is too late to do much about climate change and that we must adapt to living with it
- Expense. Personal habits
- Money. I think the County, and its citizens, need to determine how much they are willing to spend on achieving zero emissions.
- The system of business is not geared toward sustainability and it is very hard to make the shift in what seem like simple areas like groceries or goods and services.
- People not taking climate change seriously and not doing what individuals can do. The county not requiring energy efficiency on new buildings.
- Desire to drive and not reduce usage of materials that are not recyclable
- Socio economics-cost of implementation and mandates-increase government cost raising taxes to fund-Look at California and see the multiple issues in the state for their aggressive stance and how the population is declining due to those actions and cost
- Human behavior: climate change denial, unwillingness to take responsibility for carbon emissions, individual inertia (due to apathy, hopelessness, lack of time/resources).
- You will never take action that effects you. Biggest barrier is you like to preach but you aren't practicing.
- We don't need a "climate change czar" or any other government position
- We are destroying the economic future of this county, also fix the water mains for Pete sake!
- \$, older people cannot retrofit their homes, not much return for older people to go to solar, Republicans do not believe there is any climate crisis.
- Interest and motivation from residents
- County codes for building improvements are horrendous. Solar installations are complicated with county code which drives up costs
- Shifting residents from a consumer mindset to a sustainability mindset. Need for housing that puts pressure on green spaces.
- Older adults hesitate to bike. We need more 3-wheeled bikes in the bike lanes. Education about electric cars. And more publicity on the IR Act to help people get electric power in their homes.
- The all or nothing mentality, as in focusing on only one way to achieve our goals.
- Too many people
- Initial investments can be expensive. This can lead people to be skeptical and not want to try new ideas.
- Inertia. Competing priorities. For residents, shortage of contractors/providers to hire.
- Money. People are thrifty. Also, any modification to a residence and its landscaping is a major undertaking.
- Regulations
- lab expansion without planning for it.
- Community involvement. Cost

- People are not likely to make changes in their lives unless they are regulated to do so. The Lab operates independently of the county and provides the majority of the jobs and presumably the most energy use.
- Bosses often dislike WFH days
- I believe most of the barriers and challenges are just political and people fixating their own agenda. if we work together as a coherent unit are the betterment of our society we can persevere and do anything when we first have to get past any biases and shortcomings as humans to look past ourselves and see through the greater future that can be made not only for ourselves but are later generations. We need to get our heads out of our asses stop squabbling and just push for greater initiatives no matter the cost.
- Electrical system not being able to handle these loads.
- Money, tribal entities, and general public not wanting to break habits.
- Won't be able to agree on rules, punishment , and carrying thru with change.
- The huge number os single cars driving to work, the age of the homes in Los Alamos, and the need for some renovation. That involves a lot of \$\$
- Lack of education to the public. People think they're making a difference by "recycling", taking shorter showers, and turning off lights in a room they're not using. While these are great little things, there's everyday choices we make that could have a much greater impact. We have to educate the public and businesses -as well a giving incentives for people to incorporate more sustainable practices in their everyday life. Also funds. Many individuals cannot afford an electric car, solar panels, organic produce-we need to put pressure on the bigger entities (large businesses in town, the lab, people collectively and the county) to take much of the financial load for sustainable projects.
- Culturally, everyone loves the freedom their vehicles afford them. This will be impossible to shake until it is also convenient and safe to use transit, to cycle, to walk.
- Cost to upgrade infrastructure. Utilities companies protesting loss of revenue and taking action to maintain hold on gas and coal dependent energy.
- It's easier to be lazy and not make changes to the norm. It can be difficult to convince people to participate for the greater good if they feel they are being forced to change their lifestyles.
- cost
- Normal people who hate steaming, stinking piles of Communists, or dead-skunk Socialists, or limp-wristed \, man-bun-wearing "Theys". That is, people born with vaginas & ovaries who know they are "Women", and people born with penises & testicles who know they are "Men" Note that I have no issue with Women who love other Women, or Men who love Men. I just hate the lie that people born with a penis are Women, or that people born with a vagina are Men.
- Cost, apathy
- elected republicans
- Climate change denialists, those who chose to live in alternative reality.
- Cost, both real and imagined. Buy-in from residents and especially from developers and businesses. Real buy-in and participation by LAC. Volunteer efforts are always welcome but significant improvement is unlikely to happen without solid plans, deliverables, and measures. Likewise, tax incentives for certain segments of the population only shift the cost burden to a smaller segment when funding actions.
- Cost Inconvience Not a priority

- One of the principal components will be making our (old) homes and buildings more carbon free. This will be an expensive transition, so efforts should be made to accomplish this gradually and methodically, and to support those for whom this will create a financial hardship.
- Funding, lack of charging stations (no grid is able to support this effort).
- Water - pushback from residents who do not want to limit use, monitoring and enforcing limits on use, pushback from golf and tourism Clean energy sources - cost County - pushback from LAC employees who leave vehicles running for personal comfort and/or out of habit, cost to upgrade county buildings
- Activists against nuclear power, including coal and oil industry
- over aggressive government that can't help but be stupid
- Public apathy and/or ignorance
- inertia
- Truck culture, rednecks who think it's all fake
- Doing ridiculous things like encouraging mining for minerals for ev batteries . Encouraging eyesores and wildlife killers like solar and wind power
- No barriers other than it requires common sense and the scrutiny of fake or junk science
- Old house that would be hard to retrofit
- The county has little control over privately owned buildings and personal choices.
- Availability of electricians and other specialty contractors to perform the needed work
- Overpopulation (e.g. if everyone reduces emissions by 50% but population increases by 50%, nothing is gained). Changing habits (e.g. Supplanting long-distance auto and air travel with a high-speed rail system).
- County Council are their own worst enemy. They enact more barriers than letting homeowners taking care of their own business.
- corporate interests that manipulate the political system
- some people prefer more extreme measures
- People not understanding the importance of doing these things and so not cooperating.
- Resistance from segments of the community
- Older homes, employees who feel like they *must* have a car. Would need to make better bike lanes (ideally lanes separated from cars) Difficulty hiring bus drivers
- Los Alamos County's willpower to cut its own wasteful consumption.
- Politics. I hope we NEVER elect another person who believes it's "cyclical" or a hoax. You can't fix stupid, but you also don't have to elect it.
- Indifference - or non believers in climate change.
- Politicians not willing to admit that there is an almighty God in control of our planet and its natural resources.
- Our water supply is my biggest concern. And we have little effect when the Rio Grande is going dry (even in a great runoff year) and Santa Fe and Albuquerque are building whole new communities/apartments/etc. to bring in more people and businesses. We can't dictate to them and our efforts will not put a dent in the problem. Just like the US efforts to reduce carbon footprint when other countries are increasing theirs.
- It will be expensive but extremely helpful to have a bike route for commuters to get between white rock and Los Alamos

- People resisting to new ideas
- People are resistant to change
- cost and ignorance
- People blindly following the mantra of climate change.
- Too much government and private influences. Agendas are being pushed regardless of expense and dependability.
- Convenience, cost and attachment to lawns
- The problem is that too many communities focus on the "save nature" aspect. While I completely agree with the message, it does not motivate people like money does. Shifting the focus away from "be good" to "save money or even make money" is a better message for people who focus so much on their daily lives and cannot see the forest through the trees.
- Cost. Inconvenience. Sacrifice personal comforts.
- Cost, people's willingness to change life style, and the county's ability.
- Grid capacity Geographic isolation
- As previously stated the real goal needs to be NET zero carbon emissions. Rather than working to develop a plan to achieve this and looking at the costs involved, all that listed is a hodgepodge of items, with no useful information being given on their effectiveness towards achieving the needed goal.
- LA county, like most of the US, is built around the automobile. Changing that will be extraordinarily difficult.
- The electrical infrastructure needs to change first. Residents should be educated, not forced, and incentivized with money to make the change,
- Getting everyone on board to try these new (or old) ideas.
- Trinity/Diamond intersection is dangerous to bike through. Also, our electric grid is too unreliable for me to want to rely entirely on it for heating and transportation.
- Individuals not regarding themselves as a part of a larger community.
- COST!
- It's always the people. Half of the population, almost along party lines, do not believe climate change is real despite education and scientific evidence.
- The County Council and County Government resistance to approving solar panels, general crookedness.
- Cost and county permitting.
- time
- Social inertia. I've seen what happened in the past when council tried to roll out progressive water rates. It's going to take years to convince people to let go of the Kentucky bluegrass all over town, and we still haven't even started that campaign.
- Changing behavior.
- Biggest barrier or challenge is the County itself. People want to see change, Los Alamos County is only concerned with how it will affect the lab and the cost.
- dependance on fossil fuels
- Tunnel vision on CO2 emission reduction.
- Republicans
- Ramming this down the publics throat will cause an adverse reaction

- No suggestion will have any tangible effect on the climate. The well being of residents should be your focus, not dictating what cars we drive or how we heat our homes. These items will not make life tangibly better for any resident, though they may cause the poor to suffer more.
- Habits, disbelief of climate change, overcoming biases and privilege
- people who are too focused on making lofty goals for the sake of optics
- There is a large inventory of buildings in the community that will require substantial investment to be made more efficient. Additionally, the majority of those buildings are privately owned, making improvements up to the owner's discretion. Another barrier is that ~60% of LANL employees commute into work from outside Los Alamos. As LANL grows and housing in LAC remains limited, how does the LANL/LAC help enable these workers to change their commute to be less energy intensive?
- apathy, busy lives, money, climate change fatigue
- carbon free electric generation, replacing natural gas and eliminating its use
- Embedded political will to keep up with the Joneses (and Lujan-Grishams and Newson and ...) makes the default direction not thought out.
- Money; people's resistance to change; difficulty of doing all of the above at once
- Getting people onboard
- Clean power: it costs more when bought from power companies, and local clean power, like household solar, requires construction labor which is difficult to get these days, and also requires permitting, at which Los Alamos is notoriously unfriendly. Improving permitting would help at least in some cases, and might also make outside firms more willing to work in Los Alamos. Water: the main challenge is entitled residents who think they have the right to use as much water as they'd use in less drought-prone areas. Waste: we already have a good team working hard to move in the right direction, so additional improvements are harder.
- People love the convenience of their cars. That will be hard to give up. But opening more pop up food options for lunches will help!
- The needed short-term investment to make the transitions needed.
- Political inertia and unfair politicalization of these technologies and changes
- Cost. Change to clean and safe energy will cost more, and many will not like this. The perceived fear of nuclear power. Even though safer and cleaner than say, biofuels, many carry a dated fear of this form of power.
- loss of energy independence...greatly increased costs which would otherwise be unnecessary
- Convince of driving yourself and the ability to buy online and have new items delivered in 24 hours
- Cost and flexibility
- The cost. Individuals cannot take on the financial burdens required for the changes that need to be made. The government needs to foot the bill.
- Difficulty changing the norms and attitudes of people
- Humans have been brainwashed into thinking growth is good. Growth produces more waste and just exaggerates the problem
- Cost
- Cost
- Money, stakeholder buy in.

- Perceived cost and natural unwillingness to change unless confronted with an immediate, not future, risk
- Primarily cost and grid reliability, secondarily climate alarmism and catastrophic thinking fueled by media and other stakeholders which drive panic and ineffective, costly actions.
- The will.
- These strategies are not what your citizens want.
- Ignorance, denial, laziness.
- Climate change denial. Short-term costs.
- Lack of sense of urgency on this — too many other priorities — but I think this should be at the top of the list. The CAP is going to take too long. We need action now.
- Cost, long term effects-population growth
- money and people to implement strategies long-term (50+ years)
- People denying that there is a problem. Even an easy action - securing trash cans is too much effort for many. People who don't make an effort to secure trash should be cited. There is plenty of garbage in the canyons, and it should be none.
- The county's attempt to remove parks and open spaces that have a high use/ low impact on County resources (like the Orange St Playlot)
- Money and community participation, I'd rather my money be spent on actual issues and a lot of people are jaded towards this effort because it's not much use for our day to day lives
- The EPA and other government agency's. Also, a number of other NGOs that think they know better than the rest of us what is best. The wage and salary earners that are dependent on government paychecks. The political science propaganda versus real science!!
- funding, stakeholder buy-in
- Education and community incentives, and costs. The community would need to be educated on climate impacts and solutions to mitigate those impacts. Financial incentives should also be offered in order to help mitigate the impact on the community.
- Schools' custodians don't know the rules for recycling even though there are posters around the schools. This leads me to believe there is little to no communication, guidance or mandates from the county to large businesses/entities in town on how these institutions should be playing their part in our county's goals.
- Politics and those who do not believe in human caused climate change.
- Ignorance of the community
- This state does not have monetary resources to build the infrastructure. This country has enough debt. Stop printing money and increasing our debt.
- The lack of community awareness and participation for planting natural and native habitat, grasses, trees.
- Just stop.
- Too often people and government entities want to create programs because they want to brag about being a part of the current popular fad, rather than really examining what the communities real needs are and financing and addressing those. Much is needed in this county for us to be sustainable and resilient that have nothing to do with "climate change."
- Cost vs true impact
- People are focused on CO2 emissions and will ignore items important to us locally.

- Gullibility of public officials believing in hoaxes
- County residential growth driven by increased growth of the laboratory.
- The politics of the Climate Change activist community.
- A huge barrier is trying to convince the taxpayer to support this agenda, most people are smart enough to know it is a lie.
- The county seems to focus on unimportant things and not listen to the community, so really this survey is silly for me to even take the time to do.
- My issue with green technology is that it has a larger impact than traditional technologies. For example, windmill components cannot be recycled, so they're just dumped. Mining rare earth minerals for batteries is done in inhumane conditions, by children & slaves. Our infrastructure also cannot support mass electrification.
- Most people in the United States are used to driving everywhere and living far from any amenities or work. They do not have much of a conception of alternative living arrangements even if they improve their overall life (in my opinion), like denser neighborhoods with closer amenities and alternative modes of transportation. The barrier is largely cultural and many people will react immediately and strongly simply because they cannot conceive of alternatives. I hope that the County can provide a positive vision here that is framed to avoid conspiratorial thinking (like the recent "15 minute cities" hysteria). Messaging must focus on what is gained over all else, because many people will unfortunately interpret additional transportation options as an attack on driving itself, which it is not. Emphasizing more choice (with driving being one of those choices) would be a good messaging strategy, basically. Similarly, the County needs to address the stigma of riding the bus here, because many people in the United States interpret public transit as only used by the desperate and indigent rather than a choice that well-off people can and even should make.
- The County. Not everyone can afford solar wind etc. Nor can we all afford electric vehicles.
- County workers driving large trucks at half the speed limit.
- For business and building owners, dealing with the county.
- Lack of education, lack of interest, funding for this process, cultural avoidance of this topic, people feeling overwhelmed by the size of the problem, and addressing the fact this needs to be accessible to people of all income levels.
- Rather than educating themselves on these issues, many continue to choose to embrace misinformation, deny that climate change is real and dig their heels in to simply side with their uninformed political party.
- Money on the part of some residents. Not all of us are wealthy lab employees.
- The electric power grid is not adequate to go all-electric.
- Money, we need dedicated/recurring funding to implement these environmentally friendly solutions.
- Residents should decide how they would like to deal with these matters individually, not be mandated by the county to do so.
- The extra burden, cost, lifestyle changes it will cause to families.
- Ignorance and greed
- .
- LA County has the reputation of being business unfriendly in a very subtle manner. Everyone in the county is helpful, but there are so many divisions offering "help" that businesses face long

delays and confusion before they can open. I fear this climate agenda will produce another layer of "help."

- You all are playing into the crazy money grabbing politicians laundering money for their personal gain.
- Climate change is so steeped in political agendas trust in the facts has been lost. Trust in the County Government is also low so forced solutions and changes cause resistance rather than cooperation.
- politics
- it is expensive, however Los Alamos has resources. Some reduction and efficiency improvements come at little to no cost such as reducing water waste. others are more expensive and must be subsidized, with the benefit of employing individuals to do the work.
- Infrastructures will need a serious makeover; the number of power outages and water main breaks shows that our infrastructure is in bad shape.
- Lack of concern . Lack of 2M bus route for White Rock.
- People don't like feeling like choices have been eliminated, or that personal freedoms/convenience have been reduced, so even simple waste reduction behavior changes can sometimes be hard to encourage effectively -- I am amazed by the outcry from people upset about the demise of incandescent light bulbs of late, for example... LA county has barriers/challenges arising from local geography and land limitations that make large scale adoption of things like solar farms hard to envision even though they might be a significant benefit. The fact that there are a large percentage of commuters from outside of LA county driving personal vehicles limits what might be achievable in terms of reduction of vehicular emissions -- while electric cars are more efficient, the fact that LA gets its electricity from fossil fuel plants doesn't make for a great outcome even if it were to encourage electric vehicles with broad access to improved vehicle charging infrastructure.
- Our county has a huge fleet - do we really so many vehicles? County building parking lot is full of county cars!
- None.
- Getting contractors from outside the county to complete work efficiently at competitive rates. Old Homes that need a lot of retrofitting and have elderly occupants who cannot commit to the work. Many piecemeal needs.
- There really could be amazing bike connections for the community but road traffic is priority. Only isolated bike paths are safe enough to get full by-in across large populations. As for bettering the open space, there needs to be a discussion on population management of certain wildlife like the deer.
- Wasting tax payer money on these "solutions "
- Convincing people
- Getting clean power will just be hard, especially with the four corners power plant producing so much of our electricity. Shifting to alternative transportation modes will require significant investment in additional public transit and/or changing traffic flow patterns in the county.
- The county government should just get out of the way.
- Reality
- Up front costs.
- Science

- People who insist on transparent and truly scientific research before blindly adopting expensive policies.
- You have no solid metrics to Guage success by. That means you don't know if your succeeding or just wasting money.
- Infrastructure required for electric vehicle transition Climate deniers.
- People. People don't like change. We have been doing climate change educational outreach since the 80s!!! I think it's time to stop doing community education and start taking action. There will be business owners and people that complain but the end result will be something. Most people would be proud of for our town.
- Republicans
- The county wants to develop green spaces for housing and businesses and leave vacant buildings around Los Alamos and White Rock as eyesores
- Dangerous drivers on road make cycling unsafe. Sending all bus routes to/from Transit Center makes bus inefficient for any purpose other than commuting.
- Sufficient education regarding not just climate change, but the impact on individuals.
- Cost of forced adoption.
- Cost and the county forcing expensive measures on struggling families.
- Money, supply chain, staffing
- Winter is harsh up here sometimes. Shifting to alternative transportation modes like walking and bicycling is not a good idea for most people. Transit systems need to offer more hours, stops, and connections with larger transit systems.

Question 13: Do you have any additional feedback on these strategies? Are there any key strategies that you think are missing or actions you would like to see included in this plan?

- Do you have any additional feedback on these strategies? Are there any key strategies that you think are missing or actions you would like to see included in this plan?
- Open-Ended Response
- I would really like to see some type of coexistence with wildlife. Education about the use of poisons and chemicals
- Education and community outreach is just as important to focus on, in my opinion. However, when pursuing this, make sure to balance despair with hope -- we need to recognize how grave our situation is while believing we can still make meaningful change.
- BE HONEST! SHOW INTEGRITY! STOP THIS NONSENSE!
- Economic incentives to replace existing infrastructure with new technologies/equipment.
- I would like to see environmentally friendly practices subsidized and incentivized by the county
- Stop the plan!
- Scrap this plan
- Los Alamos is the home of nuclear knowledge. It is simply disgusting that NM has no nuclear power, yet processes the fuel and disposes the waste. A power reactor would do 10x more for carbon emissions than everything else combined, and create high paying jobs and education opportunities.

- Create incentives or community programs to encourage people to grow their own food; including raising poultry or animals that would help nourish the soil.
- Stop the green agenda.
- Many HOAs and landlords need encouragement and support to accept, allow, or make the changes necessary. This would also be an essential area needing attention.
- No
- Promote planned parenthood. Promote reason over superstition.
- This is not an issue for local government
- Don't appoint climate deniers to County boards.
- so we need to build in a source to fully fund (e.g. grants, or just pay for it, but loans cannot work) these replacements or they cannot happen without excessive coercion!
- I think the County should lead by example first -- reduce emissions, use less water, etc. Then use that to educate the public.
- Promote use of LED lights only and non-centralized solar power for lighting
- EV is ideal for many but infrastructure has to be first. And then it's questionable about the global climate footprint, so keep facts facts and not one sided or over politicized. Regional transit makes so much sense but only if it meets lifestyles and is safe for all commuters. Don't waste \$\$\$Millions to accommodate a few, invest properly to make it a true ROI. Go for low hanging fruit and work in phases.
- Modernize the entire electric grid to prepare for electrification. bring our own power transmission line into the county or build a nuclear power plant to supply the county with its own power reliable power and to compensate the future electrification loads.
- Full electric vehicles don't make sense. Most people in this town don't drive more than 30 miles. One full electric car battery can be split to 3 plug in hybrids. The plug in hybrids will very very rarely use the gas engines due to the short ranges. 3 vehicles is more sustainable than 1.
- No
- It was hard for me to pick only three from your list. They are all worthwhile.
- I have been really disappointed by the county's ability to get things done and address other major issues such as small businesses and the lack of housing. This needs to be explicitly addressed for any substantial change, rather than assuming a plan is going to happen without addressing the political aspect.
- I could only check 3 above but these are also needed: Transition to carbon free energy Make buildings more energy efficient and provide assistance to low income residents.
- Specifically, bike and pedestrian trails interfacing with LANL, as well as white rock and in town.
- Incentivize home solar.
- Do your homework fully, and don't take someone's word for it. Look at it from both sides.
- Plans need to assess the financial impact on the community it serves. Examples of good stewardship include assisting the poor or limited income people in the community with things such as: solar panels, window films to utilize the sun's energy or to block our excess heat. Community wastewater reuse centers located in community areas. Recyclable center at the ECO center to span jobs and inventive uses of recyclable materials. These instead of punitive regulations will have much better community acceptance.
- - Fix the bus system so it becomes an example instead of a detriment. Smaller, more frequent vehicles, electric powered, eventually recharged by a solar farm. - Designate and mark wider

streets within 25mph zones with bike lanes using vibration triggering warning stripes. - Build full curbs instead of white stripes for bicycle lanes on streets > 25mph. - Install grid-tied solar on every county building. - Install grid-tied solar shade structures on every county parking lot and subsidize this for apartments and business lots. - Discourage on-street parking in residential areas.

- Not at this time
- No.
- N/A
- No, I think we do need to do better in general.
- Maintain county facilities and infrastructure and don't waste time on the "clamate change" issue.
- Attention to biodiversity is missing. There is too much concrete in Los Alamos! The lawns are being stripped down to the dirt by the relentless mowing by the fuming lawnmower monsters! That must stop! Please don't plant in boxes (library), it is hideous looking!
- Incentivize and reward desired outcomes and offer greater flexibility and creativity to meet goals and objectives
- Hire locally and encourage the elderly to relocate to locations off the hill.
- I believe that the county of Los Alamos would highly benefit from hiring within the community of Los Alamos to reduce carbon emissions from commuting and will ensure a reason in employees to care about the quality of the town that they live and work in.
- Bring in some of Project Drawdown strategies.
- With the much larger workforce of LANL and the continuation to grow LAC the road network is not sized appropriately and does not allow the county to get people around during rush hour. This seems like this would be a large capital project but we have the resources to remedy this problem.
- End the transit contract with Bandolier. The busses mostly travel empty, beat up the roads, pollute the air, etc. The money should have been spent on parking at the Bandolier entrance and shorter shuttles in the park, if a shuttle was necessary.
- How about paying customers to switch out water and energy hogs for efficient toilets, fridges, stoves, etc
- tax incentives may be helpful or reduced utility costs for upgrades
- We will need to try multiple strategies at the same time and be willing to change tactics if something is not working.
- #4 strategy for me would be increasing alternative transportation options. #5 education campaigns.
- Education and community ownership, this County tends to take on the weight of the community, they need some ownership, it can't always be the county's responsibility.
- Protect and promote green space development. Discourage residents from xeriscaping their yards that increase water runoff and ambient temperatures. Xeriscape dries out the soil by removing plants the protect the soil from the sun and make the soil hydrophobic as a result of the the extreme drying.
- Encourage county employees to stop leaving vehicles idling when they are not in use and sometimes unattended - this is costly, increases emissions and sets a bad example.
- The key could be in changing the American stance of individualism to collectivism. We are doing this for our children and grandchildren. the future is what we are working for. not the present.

- No
- .
- Engauge in more community nature events and help people recycle and care for mother earth.
- Again, encourage telework as much as possible. This has immediate impact on the environment.
- Encourage incentivize ride sharing by commuters.
- How will the Utility department pay for all the great programs that will be proposed?
- The county has no fast chargers for EVs. There could be co-benefits of increased tourism with this addition.
- The requirement that thousands of people commute here every day from the valley, Santa Fe, and as far as Albuquerque is unfathomable to me. What a waste of fuel and time!
- I heard it mentioned that we need to consider making things accessible to everyone. I think education, resources and engagement need to be evenly spread across all communities and groups.
- LA does not, generally speaking, encourage innovative business (or business in general) and our populace is not necessarily that interested in doing the work or buying goods that would be more expensive. I think that offering incentives for doing the right thing would go a long way in this community. Also, highlighting businesses and individuals that are doing a great job, offering awards or monetary prizes, etc.
- Be the change you want to see and walk everywhere you need to go. Until then get off the Soap box.
- None
- Issue...smaller cars are less safe. Older people should be driving bigger cars (I do not mean a truck), just not a compact car.
- Needs to be a forward thinking small business oriented town. Today it is all driven by LANL monopolies on leasing buildings. No one else can pay those prices. Incentives for small businesses need to be a priority
- Better bike lanes!! Get the Lab to support biking throughout its complex.
- In addition to the use of renewable energy sources, I would also like to see the county demonstrate green building ideas, like green roofs, the use of passive solar, and onsite water reuse. I would like to see the county adopt these measures, make them open to the public and help the public to adopt them on their own properties.
- I would be happy to make significant home investments and lifestyle changes, but it is hard to know what exactly to do and how to get it done. I wish the County could provide not only general education, but also helping residents form specific action plans, perhaps in partnership with local businesses. For example, I have spent *many* hours researching heat-pump-based HVAC, xeriscaping, and wildfire hardening for my home, but there are too many confusing options and information gaps. On the other hand, all it took to get my household totally into composting was a tumbler and simple brochure from PEEC/Ecostation.
- I want to say "all of the above" to item #11, except for the "educating" part: those that care already know, the rest don't care. Also, I don't know the relative gains of the various options, so I can't pick three in any educated way. Some numbers of estimated impacts of the various options would help.
- WFH days
- I think we need to not be bent by public consensus and go into fad green energy things someone and so forth and focus on hard science and what it's provided out there to make the most sound

choices. We have the town with the most PhD.s per capita in the world. We have more smarts in this town the most. If we actually can collaborate and put our minds together to properly get the right infrastructure in I can totally have a green Utopia.

- People enjoy driving their own car for flexibility to be able to stop at the store or leave if their kid or family has an emergency if they don't live in Los Alamos. People are not willing to carpool because it is a burden.
- parking lots for cars, and requiring to use public transportation in town and to lab work sites, or walking , bikes.
- Please refer to answer on #8.
- Re: Transportation changes. Until Atomic City Transit is able to be more frequent or to deliver people to Trinity & Central without detouring to LANL (doubling and in some case tripling the length of a commute!), then we cannot consider it as a normal option. Cycling is so scary in this town, with large vehicles driving too close and ALL vehicles not being held to the speed maximums. And walking along many sections of otherwise-busy parts of town is very unappealing. No one enjoys walking along Trinity to walk between Starbucks and the Pond, it's loud, stinky, scary, and far too narrow/too close to fast traffic. This town is SMALL, most people should be able to walk from one side to the other. The many useless square miles of parking lot and roadways around this town could be better converted away from being such large heat sinks. And daily commutes could be more flexible, calmer and safer if there were fewer single occupancy vehicles. Climate help plus sanity help all at once.
- None
- Yes. Please describe: A) Where the minerals for electric vehicle batteries are going to come from. B) Where the wastes from said production processes are going. C) Where the electrical potential to charge these batteries is going to come from. D) Where the materials to convert some other source of energy to electricity to charge these batteries is going to come from. E) Where the waste from this process is going to go, and how it will be processed. F) How will batteries in far northern (and southern) latitudes be charged. G) What surface will roads have to support EV. Where will the components of said road be sourced. H) Where will the wastes from said roads be processed. I) What will be the source of lubricants for EV, given they must provide all air, land and sea based transportation. J) Will the Green acolytes ever admit they don't have a fucking clue as to deal with the real-world issues associated with their elitist, utopian wet dreams. K) Do the Green acolytes understand the truism, "Their reach exceeded their grasp".
- Set goals, build review into all process and actions, monitor and measure, conduct at least annual review for effectiveness and modification as necessary.
- No comment! The community should be involved in this effort or it will never work without support.
- Purchase nuclear generated electric power
- No
- No
- Get the youth involved in planting more trees. Trees remove GigaTons of CO2 naturally
- Do a cost benefit analysis. See Cato regulation magazine for this. Continue the Nuscale nuclear project. As far as emissions goes try to reduce wood burning stove by making natural gas cheaper or getting enough reliable electrical power for heating. Wind mills are not the answer, too intermittent and they kill eagles. Silent Spring made a big deal about the loss of Bald Eagles by environmental, Now it will be OK to Kill them as long as it done with a wind mill.

Remember fossil fuels saved the whales, so we need more of it, not wind mills in the oceans killing them!

- We need to do a lot and much of it faster, so need to explore a wide range of strategies to see which can gain momentum.
- ...
- County should let homeowners decide to go with xeriscape/natural environment/Bee & Pollinator friendly Yards instead of handing out violations constantly.
- my home needs protection from intense sunlight, but I'm concerned that planting trees would increase the risk to my home in a wildfire
- county and state government should assess consequences of their actions regarding climate change
- Stop catastrophizing climate change. Stop pushing an electrification agenda. Focus on securing citizens' access to affordable, reliable energy.
- No.
- Open a Bible, go take a science class that describes what the air we breath is made up of and how carbon dioxide supports life on this planet.
- You didn't mention nuclear in your alternative energy sources.
- A bike route for commuters between White Rock and Los Alamos will be extremely beneficial to the community
- More honest discussions on exactly how much climate change is a part of natural phenomena and what human activities can and do contribute to achieving any real assistance in controlling our contributions to Earth's natural evolution. We do not have enough factual knowledge at this point.
- I added nuclear power.
- LAC and its partners have no intention of giving accurate education to residence. Furthermore they do not put the choice to the individual residence but rather focus on an all or nothing approach. Smaller more cost effective approaches could be taken but LAC won't listen.
- In order to be serious about Climate Action, a plan needs to be derived and communicated. There should be concrete steps to effectively actuate the plan, with measurable outcomes. The plan needs to include motivators to get people to participate and those factors need to be well communicated to residents and workers. For example, on top of federal incentives, there should be county incentives for residents to change their energy and water usage. There ought to be incentives to install solar and the maximum limit of 10kw ought to be increased to 15kw or 20kw. As part of that, the county ought to work with residents that are interested in installing solar. The county should work to reduce the cost of projects by pooling serious purchasers into an individual work contract to reduce the cost of installation. I installed a 10kw system on my house. I paid for it in February 2023 and was not completed until August 2023. If we had better collective representation with businesses, we would get lower rates and projects would be completed faster. As for water usage, the county should be recycling residential water and feeding it back into the system. It is costly to start, but would save a lot of cost and headaches in the future. The county also should consider cisterns outside of just water towers. At the very least, find well qualified consultants and pay for a realistic cost estimate for such projects. I would also consider the idea of a water usage tier pricing system. That would assist in reducing usage. I would also consider instituting all future county vehicle purchases be for electric vehicles, unless otherwise not available. And with that, creating appropriate charging infrastructure county-wide. There should be level 3 chargers in Los Alamos and White Rock (yes,

some will be installed in White Rock shortly). There should also be more level 2 chargers throughout the county and ensure that all government buildings where people work have a few of them, whether they are free, like at the municipal building, or pay to use. LANL has those chargers that are powered only by battery and the power comes from solar. They are a bit slow, but they are self-contained, which offers drivers 100% renewable energy and are highly effective when people visit places in town. I would also consider incentives for any new construction to install any kind of level 2 charging when they build or rehabilitate buildings or pavement. Imagine if the parking lot at Smith's had either level 2 or level 3 charging. That would encourage people to use it, especially those in apartments. There are many, many more strategies that focus on improving financial well being of residents and workers.

- No.
- The worst thing the county can do is to simply regulate without solving problems behind it: EVs are good in general. But in national discussion, it mostly focuses big cities but ignore states like New Mexico: large, rural, and low population density. If the county is to push for EV, it needs a different language to persuade people that EVs are a viable option in New Mexico: Could I have confidence to go to Denver for a doctor visit? Could I go to Costco for shopping and come back without charging? Could I bring my kid(s) for a state competition in a remote town? Secondly, if the county is going to push for building efficiency and solar panels, the county needs to address issues of high contractor cost, of which the county suffers from for itself. For example, there are very limited number of high-efficiency heat pump or solar panel providers and their price is significantly higher than national average. It's not that the residents are not willing to do it, but the price is prohibitive. (I have done both, albeit reluctantly). Lastly, if the county is pushing to "right-size" the vehicle, then there should be convenient and cheap way when a larger size vehicle is needed. A pickup is almost necessary for a home owner given the high contractor cost, but there is no cheap and convenient way to rent one when I need a truck. Unfortunately, I cannot "right-size" my vehicle: I need to buy one for a once-in-a-month DIY need.
- Demand pricing on electricity to drive demand towards time of lower loads.
- Start with changes that will not have to be redone a few years down the road and pay for themselves in the long run.
- increasing recycling and reducing water use will do absolutely nothing about climate change.
- The county should focus on zoning and new public buildings (schools particularly) To eliminate the need for transport. For example the new middle school should be in White Rock, not the townsite. Schools should be reopened or built so that students are within the one mile limit that does not require busing, Schools should pay an out of district emission fee for every out of district student. The county should incentivize, via tax credits, on property bills, those who have achieved a specified insulation value and double pane windows, businesses that provide remote work for employees (eliminating transportation), and those who have added solar systems with battery backup. The county should waive permit fees for modifications that reduce energy use, increase population density (eg single family to duplex or adding an additional living unit), or other ideas that can eliminate or reduce transportation.
- Make a local curriculum in schools specific to Los Alamos County's approach to addressing climate change.
- A lot of these strategies are extremely expensive. Poor home owners will not be able to afford them.
- I'm really glad I'm the one filling in this survey, and not somebody reading them and trying to figure out what to do next!

- We have laws and regulations in place, lets enforce them for building codes and land use. But with the recent influx of construction it seems that the rules are out the window.
- Beef production and consumption is not an environmental problem if done properly (small local grass fed or forage fed farms) and is even good for the planet. Plant based foods are not as healthy for humans as forage fed beef is. A transition to plant based foods will not help the environment.
- Focus on protecting the community from immediate threats (already occurring) rather than long-term (~30-50 years) GHG reduction. Water vapor is responsible for 90% of the green house effect.
- This is a waste of money
- I recently read an article that the los alamos water situation should be more than sufficient for the next 10 decades or so
- Understanding you will not release your devotion to solving climate change, I would challenge the county to commit equally, dollar for dollar, FTE for FTE, to these climate change goals and programs to help and provide for the wellness of Los alamos county residents.
- Don't be misled by political hype, climate change is not an issue. Listen to the real scientists
- get high schoolers involved
- distributed rooftop solar on residential, commercial, and government buildings with distributed storage
- What an amazing list! We also need broadband....
- Encouraging families to use sustainable gardening methods by offering incentives toward families who garden, and creating a common garden exchange.
- Making the economic sense of the transition in the long-term.
- We have access to DOE resources and should leverage these connections to lead in this area. I moved from Northwest Arkansas where the Walton foundation focused on biking development but most importantly used this to BUILD TEMPLATE MASTER DOCUMENTS THAT COULD BE USED IN OTHER LOCATIONS. The connections to DOE could be useful in pursuing grants and other funding to develop MASTER PLANS THAT COULD BE USED AS DEVELOPMENT TEMPLATES IN OTHER LOCATIONS.
- Education. I don't think most people know what the true, non-subsidized cost of the various forms of clean energy is. Battery replacement, infrastructure changes, real-estate purchases or leases for energy providing equipment, etc.
- reduce fanaticism on the topic of global warming
- Nuclear energy.
- Schools and businesses operate a little longer for 4 days a week instead of 5. this would save emissions and money.
- We need to be able to have residential solar panels connected to the grid like other states have
- Evaluate cost vs benefit for any action. Focus efforts where the most effect can be achieved for the lowest cost. Avoid cute virtue signaling activities. Beware of the potential for harm by reducing energy availability and affordability locally and worldwide.
- Frankly, you just need to try to resurrect a decent economy in town.
- None

- Recruit and train HVAC tech's / plumbers to recommend and install heat pumps to residential and commercial customers; figure out way to expedite more rooftop solar, net metering, and bi-directional power.
- I think starting is halfway toward any of the goals. Just do something, don't make it too big, get some success and then build.
- The parks and trails system needs to be expanded and made more accessible. Bike routes need to be created safely away from commuter car traffic especially near the Diamond/Trinity/Canyon area.
- You need to find a way to make this important for everyone now.
- A more hands off approach concerning the citizenry and a greater approach in dealing with the government entities affecting the progress of true forest management and proper land usage. Focus on moving the majority of LANL operations to a more amenable site as well as downsizing the total employment numbers.
- promotion of nuclear energy.
- I would like to see the community be educated by the actions of the larger entities in town - not just the county buildings and people. This will serve two purposes: one, educating the community - two, having a bigger impact on the problem than single households can do alone.
- The county should spend a significant budget on social media toward community participation for planting native flora.
- Real forest management. Stop painting logos on intersections. Stop running businesses out of town. Stop wasting money in general.
- Our community continues to ask for support for and recruitment of small businesses to support community needs. Feedback continues to state that this is not happening. The county needs to explore how they can address residents needs rather than continuing to move forward with and spending money on their own pet projects not seen by residents as a priority.
- I think enhancing the "programs" we already have (eco station, green space preservation, etc. are good and useful and it is always wise to make buildings energy efficient and not be wasteful. However most alternative energy sources come with their own set of problems and waste (and scepter maybe nuclear) and I believe we need more time and research before sinking funding in that area.
- Focus on water and waste.
- Don't do anything
- Natural gas is basically clean energy and should be considered strongly as part of a diversified energy plan. Diversification is strength!
- Common sense - conserve water, adopt nuclear avoid nonsense policies such as banning gas appliances. Avoid banning gas furnaces. Heat pumps are not sufficient in cold weather (I have 3 of them).
- Back off the taxpayer and focus on more urgent needs in this dying town.
- No
- Back off of this nonsense is the only acceptable strategy. Quit it!
- Messaging like "reducing your carbon footprint" has the unfortunate framing of concentrating on reduction rather than elimination of carbon. You cannot reduce your footprint to nothing. You need some place to stand, etc. I just want to point out that this messaging can be counterproductive. I would use the phrase "reduce your carbon pollution" instead of "reduce your carbon footprint" for that reason.

- What's the plan on obtaining funding to accomplish these lofty goals?
- No
- Free programs for people of all ages that give hands-on opportunities to see how powerful these changes can be.
- The county needs to address open space zoning issues
- This is one of the most educated populaces in the country. Stop trying to educate people. If they're not already educated, then they don't wish to be. Take another approach. Bears are an example. People know better than to put unsecured trash out. They just don't care.
- Thoroughly thought out, cost-effective science based & tested alternatives for electrical generation is mandatory. The cost of raw materials, the longevity of systems, the byproducts etc can be worse then what is being replaced. The same goes for EVs.
- Education will be key to make the community aware of these initiatives and the importance of them.
- No
- Increased bus routes to include weekend and later evening routes to better accommodate all schedules.
- Recognize that most newcomers to LA are not aware and behaving responsibly about water use, trash collection (harming wildlife and posing increased safety hazards), and the importance of such things.
- .
- Don't destroy us.
- None.
- When a home goes in the market, there should be required energy efficiency standards met or committed to by the buyer for it to be sold. Rain water should be collected and used for non-potable needs throughout the county.
- There needs to be a "do nothing further than we currently are option". This needs to be really thought through. Especially as the electric grid will not sustain EV charging and space heating in the winter once you take the natural gas away. The grid update alone will be unaffordable as our current grid is hardly reliable enough as it stands
- Nuclear energy is sustainable and should be considered/mention as an option. This is Los Alamos after all.....
- Composting is a great idea. We need to engineer real solutions to handle plastic waste. Unfortunately, much of our plastic waste ends up in the ocean and waterways despite recycling programs.
- Nope
- Stop wasting our taxes
- Too many to list here. Things like, where does electric power come from?
- Concrete metrics with off ramps, If we do X, in 5 years we will have seen y increase or decrease. If not, stop funding it and move to something else. Don't tell me my plastic straw is going to kill a turtle. You bury our trash in Los Lunas, how the hell does it get to the ocean! It doesn't. Stop trying to stay up with the cause de jour. Use some darn common sense.
- Can we designate a few weekends a year for people to leave free things at the end of their driveways to encourage reuse instead of throwing things away?
- Significantly incentivize energy efficiency improvements to older homes.

- No.
- Remember that middle income families also cannot afford to implement many of the options out there. Between the cost of living, supporting a family, education costs, and more, making changes to a home that are not absolutely necessary are going to be way down the list of priorities. Kind of like buying a car when you don't need to.
- Encourage stores to offer more bin type goods so people don't create so much waste. Paper waste is fine, it's reusable and we can grow more trees and it decomposes quickly.

Question 14: What are some things you or your household/business HAVE DONE or would be WILLING TO DO to support climate action? (Select all that apply)

Other (please specify)

- I save water in the house from running water to get it hot for dishwasher and shower and use it to water outdoor and indoor plants
- None of the above
- talk with people who don't agree with me
- We are very environmentally conscious and understand what everyone can do.
- I do many bbn odd these things already because i chose to do so, but NOT FOR THE VCLIMATE CHANGE HOAX
- I do many of these things, but not for the purpose of the climate
- None. Climate action is a fraud.
- I wont commit to any specific action, as I take these as time and budget allow.
- Don't skew our personal diet choices - that is un- American and not based on our traditional regional methods of farming and ranching for ourselves. This shows the disconnect with global hype and that of our individual region! Promote small farms and organic meats, not bio lab synthetic bs!
- Recycle plastics, paper, cardboard, glass and metal
- We do all we can to conserve water, recognizing that household use is a small fraction of industrial use.
- Installed weather efficient windows use shades to keep out sun/cold
- Town is an ideal size for E-bike use (consider bike share program)
- Fisn , poultry, plant foods are Not necessarily environmentally friendly.
- Already purchased EV
- You pay for it and i don't. sign me up. I get the same out put as i do now and its cheaper I'm all for it. Make me foot a bigger bill and or pay to make you happy, then its a hard pass.
- growing our own food and beef
- Develop local sources of electricity.
- None
- N/A
- I'd have solar panels but my HOA doesn't allow for it since they maintain the building roof.
- Perhaps move away from this socialist enclave.
- We are renters, so we are limited to what we can do.

- I would like to make my place of lodging more energy efficient but am a renter & at mercy of landlord. (The won't sell unit to me at this time,)
- Planting trees on property help cool the yards and therefore, the houses. They keep property values up and clean the air.
- We have no dishwasher, clothes dryer, television or air conditioner.
- Learn techniques to minimize water use in the home.
- Replace old windows. Replace gas furnaces with heat pumps . Replace old toilets with low water use ones. Etc
- Others I'd be willing to do, but can't as I rent a home.
- Telework! It has been shown that during the Covid lockdown, the impact on the air quality was immediate and noticeable.
- Compost
- Limit our water and electric usage
- I do not own my home here so I am unable to add some of above home improvement that I would otherwise consider
- I participate, as much as possible, in all community efforts toward a more sustainable future: seed library, food pantry, bee city, etc.
- Talking to friends, neighbors and the community about climate change solutions! Voting for local, state and national candidates who act on climate change. Shifting retirement investments away from fossil fuels and into businesses supporting sustainability. Charitable donations. Flying less.
- None other and we don't need the government to tell us what to do
- Stop
- Use a 3 gallon bucket to get hot water for shower. You 3 gallon bucket in kitchen sink to catch all water from washing vegetables, etc. Use that water to water indoor and outdoor plants
- Install an induction oven that uses electricity.
- recycle through use of thrift stores. we do not drive off hill unless necessary, usually Medical needs. I cook most all meals .
- Okay to be honest I would love to do all these some of them I already am but a lot of them like renovating your house or installing solar panels require a lot more money and I am a millennial who am very thankful unfortunate for this job but I am not getting paid near my worth and I believe that the county also gives money to those are employing to help better themselves and push forward the beliefs and facets the county wishes to show will, Will be a stronger front going forward. We are in a unique situation thusly we need a closer and more accurate understanding of the salaries here and what we are paying our people. I can't say that these are hard times here we are a very lucrative county we can easily pay our employees what they are worth.
- I would plant more trees if there was a tax incentive for it. I would also use the smart watering feature of my sprinkler system if the county didn't force the even/odd watering schedule. This would use less water overall.
- (Eating more fish and poultry is not great for the environment when looking into the overall environmental impact fyi)
- los alamos recycle program
- Recycle everything. Waste nothing. Cheer the death of every politician.
- Driving less is not an option in this State or County due to the distance required to work and access goods and services

- I do a lot of these things already. Lower your carbon footprint by not having a dog
- to a large degree, we have already taken these actions.
- as an ex-vegan, I will never support a plant-based diet again. It is harmful to humans.
- Recycle
- I drive less because the price of gas!
- Vote democrats out.
- I have had a solar home for over 20 years, it has nothing to do with climate change.
- Much I already do, however county restrictions have made it expensive or impossible to do more. County needs to focus on empowering its citizens instead of making money off of the changes proposed.
- Edible landscape.
- Many of the items listed above really have next to no impact on the problem and hence I have left them unchecked. Some are simply incompatible with my house or are too costly to implement. The items I have adopted are largely ones that save money.
- We built a true passive solar home here in 1986, and it is functioning beautifully.
- Many of these options require a ton of \$\$\$ and local tradespeople to perform the work. Have I mentioned enough how expensive the proposed changes are and how implementing them and requiring residents to fall in line will price out the poor?
- I never do stuff, so I barely have an impact on the world.
- Line dry laundry. Go vegan. Eliminate air travel.
- eat more locally produced foods especially beef
- I just want less chemicals and microplastics in my drinking water
- None of the above
- We do several of the unchecked items just for reasons of economy and sustainability, independent of concerns about climate change.
- None of the above
- Be educated on this topic; donate to org's that support climate action programs, and be an advocate for positive change.
- We already did it or are doing most of the above.
- Focus on all life efficiencies using proper heating and cooling methods as well as usage of reusable items instead of one and done when possible.
- I feel as if you are trying to destroy our American dream we have worked so hard for, and want us to live as a 3rd world country.
- Recycle
- I will not practice your religion.
- I believe many residents already have solar panels, have reduced single use items, buy second hand materials, use sustainable yard products because we live in a high desert environment and have been doing so for years.
- Not my concern
- Nothing
- I already do so many of these.
- We do not believe in human caused climate change and therefore will continue to live as we do.

- Growing a percentage of our households food at home. To help reduce carbon footprint of our food.
- I'd be willing to do a lot of these things, but I can't afford them. I've been a vegetarian for over 30 years. I can afford that.
- None
- .
- You all are nuts. The climate is always changing. Can't wait for the next ICE AGE propaganda we have seen before.
- We have already done the things selected because it made sense to us as a family. Choice is an important element in these decisions.
- none.
- Use libraries and community sharing programs rather than buying items
- Eat more beef and pork
- Come up with surveys for public policy formulation that isn't so obviously biased! For instance, you make people choose at least two of your choices above even if they don't agree with them. Very dishonest of you.
- Hybrid vehicle that isn't plug-in. Why is plug-in better? Wouldn't I have to hire an electrician to add a plug? Who can afford that?

Question 16: Email? (Open response)

[Not included in this appendix]

Question 17: Name? (Open response)

[Not included in this appendix]

Question 18: What is your zip code? (Open response)

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Question 22: What is your race? (Mark one or more races to indicate what race you consider yourself to be)

Other (please specify)

- O
- American
- Mexican
- Other
- None of your business.
- None of your business
- H
- minority
- Human
- Northern NM Hispanic

- Race is an artificial construct that I will not respond to
- Human
- hispanic
- American
- what ever i feel like i want to be today.
- Obviously white cause this county can't help but price minorities out with ridiculous regulations like climate action plans.
- German-Irish American
- Latin American (Hispanic)
- My family cam over on the Mayflower, but I don't associate with that side of the family.
- European
- Hi
- mixed race
- If African American is considered a race (i.e., Elon Musk), then I would be considered an American.
- Non-disclosure
- I identify as an Apache Attack Helicopter
- I identify in a different way
- mixed, including Latinx
- Native American
- American
- human
- Biracial
- Newer Native American

Question 25: Which best describes the building you live in?

Other (please specify)

- Multigenerational home
- None of your business
- Senior condo (Oppenheimer Place)

Question 26: Do you rent or own the place where you live?

Neither (please specify)

- staying with parents
- None of your business
- home is owned by mother-in-law. We are caretakers
- This is my fathers home.
- My partner owns the house that we live in.

- I own the mobile home but rent the space it's located on.
- I own my home, but rent the property
- Live with parents

Question 27: Do you work or volunteer for an organization in any of the following sectors? (Select all that apply)

Other (please specify)

- admin support
- None of your business
- Los Alamos Dog Obedience Club
- Science
- Local sports groups for our kids
- Natural science of behavior (behaviorology [not any part or kind of psychology])
- Life science
- Kiwanis
- Acequia management
- Entertainment / NM Film
- Performing arts
- Wildlife Conservation
- Volunteer in a Thrift Shop
- national security
- Corrections
- Performing Arts
- Public service
- Emergency Management
- LA county PRB
- Los Alamos Public Library Systems
- Government - Public Safety
- Govt and Utilities
- Master Gardeners Assoc. (MNSU Ext. Office)
- retired
- Climate Reality, Seed Library
- Natural resource management
- the most valuable sector. Youth Programs
- Rather not
- LANL
- Health care access and advocacy
- Advocacy for voting rights, democracy, women's rights
- care provider for family member

- Retired, too old to volunteer anymore.
- Work at County, volunteer at gardening, animal shelter.
- Dog training
- Government
- related ie Senior Center
- Lab
- Retired
- I am retired
- Economic development
- Kiwanis community service
- Music groups
- Retired from lab; try to keep current on a range of issues
- National Park Service
- Defense
- Public polidy development
- xx
- Dog rescue
- international conservation science
- Museum
- Focus on real solutions and not hyperbola or government induced propaganda and agenda's. Seek true knowledge from those with real wisdom and knowledge and not just those that derive their livleyhood from the government. d
- Credit Union Board
- Healthcare
- Local Government
- Environmental Remediation
- Webpage for nonprofit
- Arts and Culture



APPENDIX F.

Community Workshop Summary



LOS ALAMOS CAP: COMMUNITY WORKSHOP SUMMARY

April 2, 2024 | County Council Chambers & Zoom (Hybrid Meeting) | 6:00–7:30 pm

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WORKSHOP OVERVIEW

Los Alamos County hosted a hybrid public workshop in Council Chambers and on Zoom on April 2, 2024, from 6:00–7:30 pm. Approximately 17 community members attended in Council Chambers and 8 attended on Zoom.

This document summarizes participation, discussion, questions, and feedback from the Climate Action Plan (CAP) public workshop. This input will be used to inform the draft CAP development and implementation planning.

Workshop Goals

- Provide updates on the CAP process, including results from the GHG inventory and action analyses.
- Vet the CAP strategy and action list with the community to understand which actions are most and least supported.
- Begin soliciting input on action implementation (e.g., potential partners, equity considerations).

Workshop Agenda

Time	Agenda Item
6:00–6:10 pm (10 min)	Welcome & introductions
6:10–6:45 pm (35 min)	Presentation & interactive polling
6:45–7:00 pm (15 min)	Q&A
7:00–7:25 pm (25 min)	Interactive activity
7:25–7:30 pm (5 min)	Thank you & adjourn

OVERARCHING FEEDBACK & TAKEAWAYS

During the interactive polling activity, workshop attendees indicated that:

- Buildings & energy and transportation & land use are high priority focus areas for the CAP.
- Within those focus areas, there is strong support for:
 - Incentivizing and encouraging energy efficiency and electrification retrofits.
 - Adopting green building standards and replacing electric equipment at burnout.
 - Developing an EV infrastructure plan.
 - Advocating and partnering regionally to improve transit network.
 - Developing a CTR program.
- Within those focus areas, there is less support for:
 - Establishing energy benchmarking programs for commercial and municipal buildings.
 - Developing a contractor training program.
 - Implementing codes requiring EV infrastructure and promoting EV adoption.
 - Encouraging multimodal transportation.
- Transitioning the County fleet to EVs has strong support from some and less support from others (it scored high for actions that are most and least supported).
- The CAP action list should include robust community engagement and education, promote economic development, provide resources for community members, and focus on a variety of environmental issues, including waste, carbon sequestration, food, and water resources.
- Meeting the county's climate goals may face challenges related to costs and funding, education and communication, the political and legal landscape, and differing perspectives on climate science.
- Ideas for overcoming challenges include education, framing (e.g., promote other benefits of climate action, compare with peer jurisdictions taking action), collaboration and cooperation, and legal and political action and advocacy.

During the interactive feedback activity, workshop attendees shared their opinions, suggestions, and priorities related to the draft actions, including that adaptation to a changing climate is necessary, the County fleet transition to EVs should be a lower priority, and sustainable business certification incentives would be helpful.

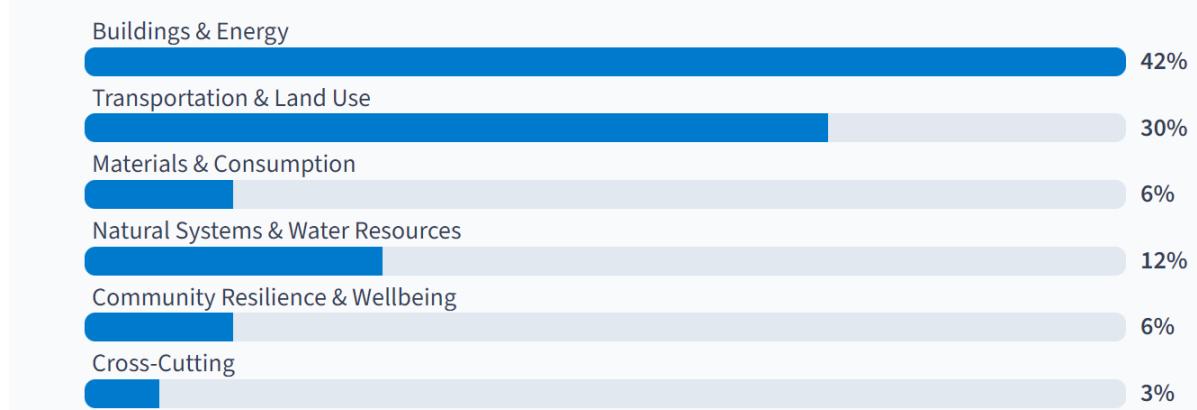
See below for more detailed feedback received during the workshop.

INTERACTIVE POLLING QUESTIONS

At the end of the presentation, attendees participated in an interactive polling activity. Polling questions and results are summarized below.

1. Which focus areas should be the highest priority for the CAP? (Select up to 2.)

Attendees indicated that buildings & energy and transportation & land use should be the highest priority focus areas for the CAP, selected by 42% and 30% of attendees, respectively. This question received 33 responses (each selection registered as 1 response).

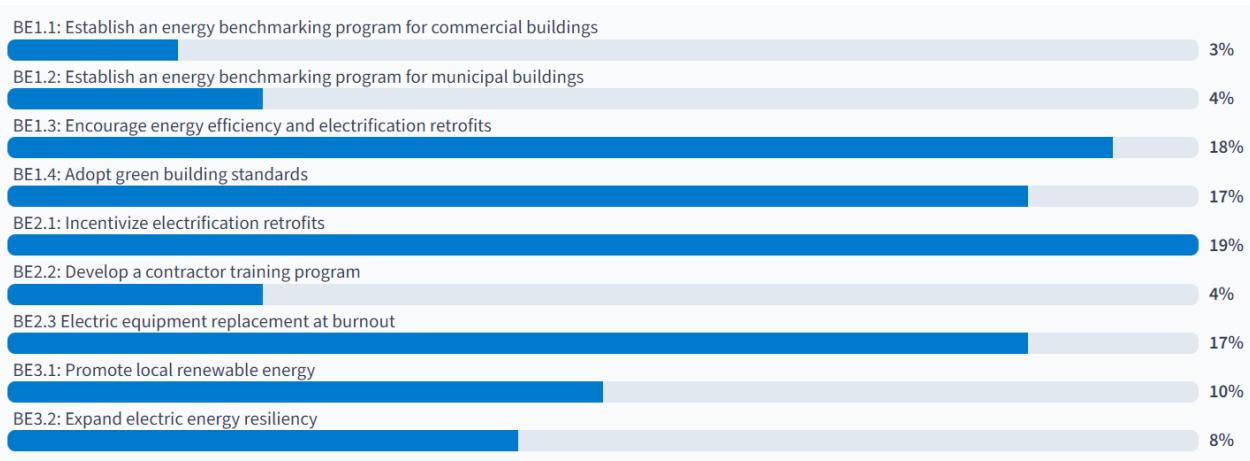


2. For the Buildings & Energy focus area:

a) Which actions do you most support? (Select up to 3.)

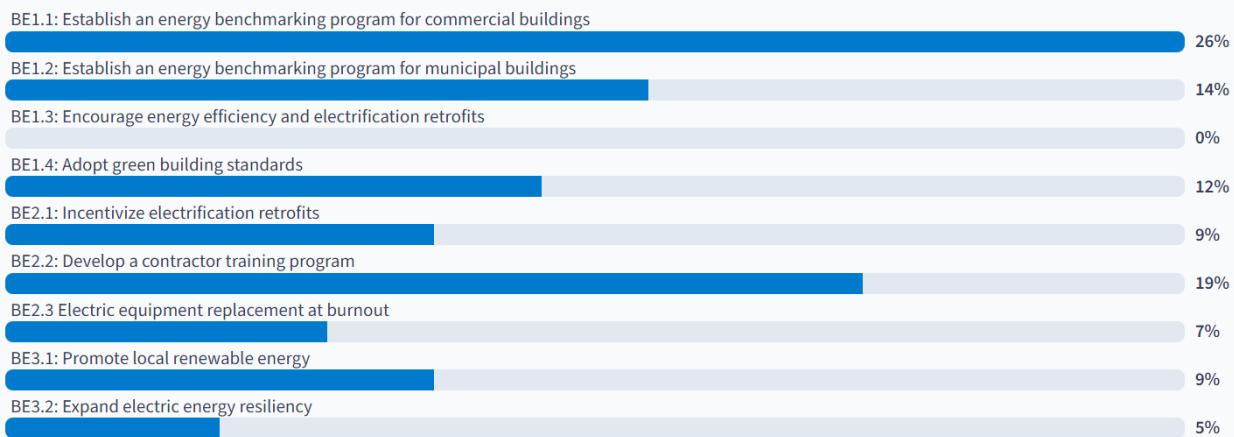
Attendees most supported actions BE2.1: Incentivize electrification retrofits (19%), BE1.3: Encourage energy efficiency and electrification retrofits (18%), BE1.4: Adopt green building standards (17%), and BE2.3: Electric equipment replacement at burnout (17%). This question received 72 responses (each selection registered as 1 response).

Los Alamos CAP: Community Workshop Agenda



b) Which actions do you least support, if any? (Select up to 3.)

Attendees least supported actions BE1.1: Establish an energy benchmarking program for commercial buildings (26%), BE2.2: Develop a contractor training program (19%), and BE1.2: Establish an energy benchmarking program for municipal buildings (14%). This question received 43 responses (each selection registered as 1 response).

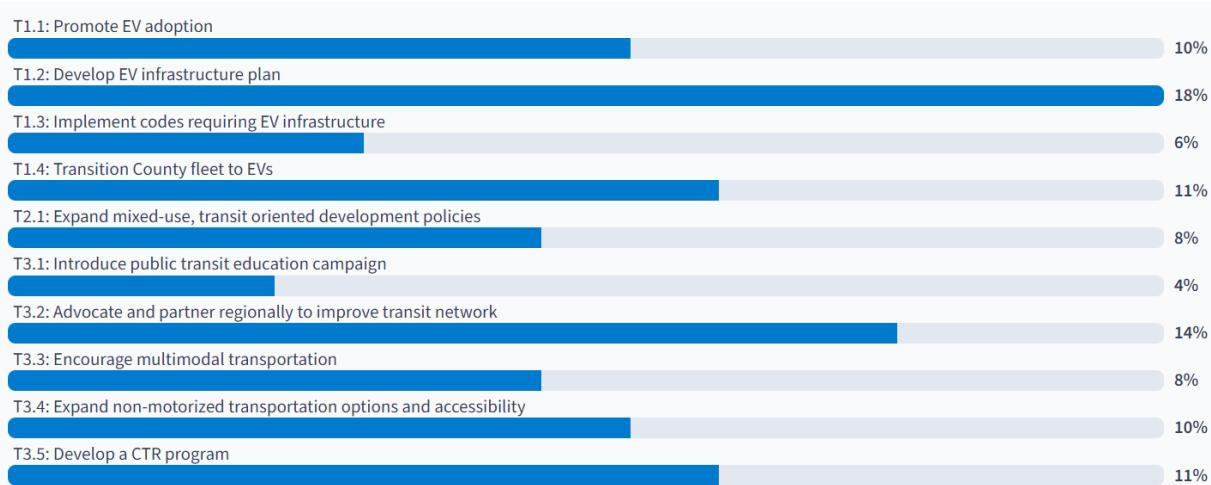


3. For the Transportation & Land Use focus area:

a. Which actions do you most support? (Select up to 3.)

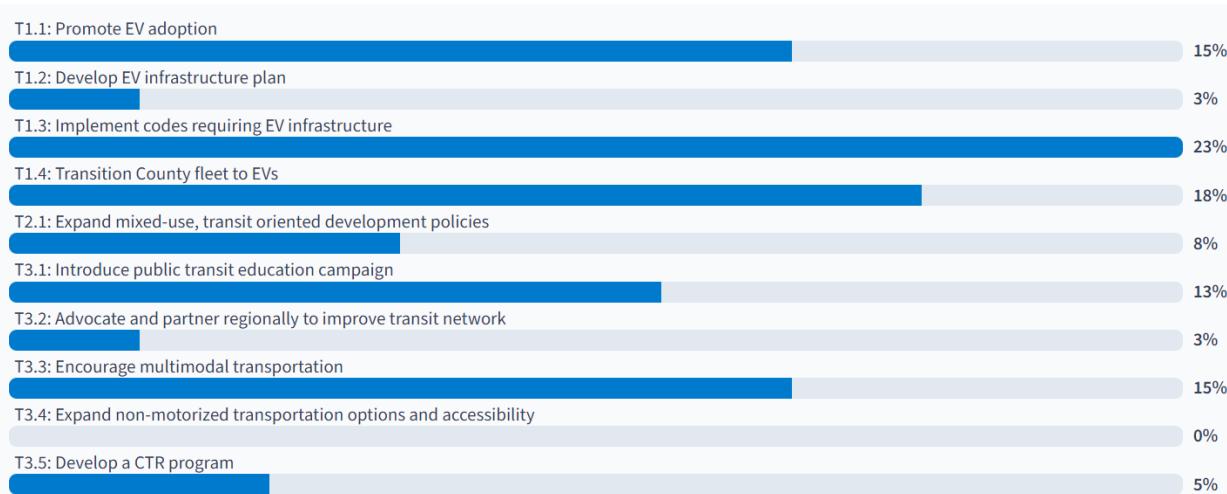
Attendees most supported actions T1.2: Develop EV infrastructure plan (18%), T3.2: Advocate and partner regionally to improve transit network (14%), T1.4: Transition County fleet to EVs (11%), and T3.5: Develop a CTR program (11%). This question received 72 responses (each selection registered as 1 response).

Los Alamos CAP: Community Workshop Agenda



b. Which actions do you least support, if any? (Select up to 3.)

Attendees least supported actions T1.3: Implement codes requiring EV infrastructure (23%), T1.4: Transition County fleet to EVs (18%), T1.1: Promote EV adoption (15%), and T3.3: Encourage multimodal transportation (15%). This question received 40 responses (each selection registered as 1 response).



4. What actions are we missing?

Attendees submitted the following responses to this open-ended question:

- Provide vouchers for low income households for retrofits
- Robust community engagement
- Energy efficiency in remodeling existing buildings
- Safe streets for bicycling to work
- Work with schools to achieve these goals
- Carpool incentives (including school, sports) ...

- Diversifying local food retailers
- Support DPU with transmission challenges
- Water use plans and water catchment plans.
- Rather than encourage and education of multimodal, plan and implement safer streets for bike/ped
- Encourage economic development
- More focus and items related to water access, availability and quality.
- Community solar with regional neighbors
- Educate on plant based foods sources locally
- Reducing plastic and styrofoam usage. Emission standards for trucks
- How to sequester carbon at home
- Apartment dwellers find it very hard to charge
- Eliminating plastics in waste stream
- Economic development that bring needed services to community
- Energy justice
- Housing

5. What suggestions do you have to make these actions more impactful and equitable?

Attendees submitted the following responses to this open-ended question:

- Think about lab commuters
- Low/no-interest loans for residential efficiency/electrification retrofits
- Also - thank you!
- Realtime dashboard to see how actions are helping
- Don't force solutions that are not business and budget friendly.
- Robust community engagement
- Be realistic about local government imposing regulation that causes large pushback
- I have to read more - but maybe quantifying if I do x (& encourage y neighbors) what my impact would be
- Provide info about how to electrify incrementally, step by step
- Build a solar garden for customers with limited income
- Have regular updates/presentations on progress
- Including estimated costs or amounts for incentives would be helpful. It's difficult to understand how much it will cost. Perhaps \$/mtco2e
- Legalize housing to reduce emissions
- More ways to get info out into community to increase participation
- Ensure diversity in feedback and community input

6. What challenges may we face in meeting our target?

Attendees submitted the following responses to this open-ended question:

- Events at schools

- Promoting neighbor to neighbor communication ... providing tips/worksheets that help us
- Getting renewable energy to LAC
- Gas reduction legal landscape ... lessons learned from municipalities that are further down this path
- Education on appliance replacement/\$
- Reducing emissions in (just) LA will not affect the climate in LA
- Up front costs
- \$\$
- People in LA don't love to spend money unless they know it will have good ROI
- Partnering w other local stakeholders
- Ambitions not supported by available funding. Unsustainable expectations.
- So many commuters may not feel invested.
- How to move climate deniers to reduce carbon
- People not understanding the benefit of these actions
- Cost to households to comply with policies
- Political opposition: NIMBYism, resistance to change
- State anti-donation law
- Changing the politics of climate change
- Land use requirements for large solar, nuclear, utility expansion
- Climate change deniers

7. How should we overcome those challenges?

Attendees submitted the following responses to this open-ended question:

- Make the right choice = an easy choice
- Present things as a way to save money, increase air quality, etc rather than climate focused. Mutual benefits.
- Remind people this is not radical stuff
- Need to start incremental improvements and investments now
- Be adaptable. Watch what happens in other areas and do not repeat failed strategies.
- More bus routes in evening and weekend
- Cooperation with tribal communities
- Constantly give examples of how other cities and towns and states have already done this
- Remove the many legal barriers to dense housing
- Work with state legislature to modify anti donation clause
- County insert in newspaper on appliance replacement
- Build sense of community
- Events like these are good to educate people and give them the opportunity to ask questions
- Educate and incentivize
- Continued community education
- adequate public transit to other cities and more services provided locally

- Good journalism that explains
- Workplace and neighborhood communication

Q&A

After the presentation and interactive polling activity, attendees were invited to ask questions during a live Q&A session. See below for paraphrased questions and responses.

- **Question:** A lot of these recommendations need to be implemented in order to reach our goal, but we just voted on preferences; how will you assess preferences versus what really needs to happen to reach the desired goal?
 - **Answer:** Our analysis did show that we need all the actions modeled to reach the GHG reduction target; that said, there are options in terms of when actions might be implemented over time. High-priority actions with strong community support might be prioritized for early implementation, while less impactful actions with less support might be considered for exclusion from the plan.
- **Question:** Is there a strategy to encourage heater replacement before emergencies, considering most replacements occur under duress?
 - **Answer:** Education and access to resources are key strategies to encourage proactive heater replacements. Providing information and resources before emergencies can help individuals make informed decisions and consider the benefits of retrofits, which can reduce energy use and make for a more comfortable home.
- **Question:** How will funding for the CAP be addressed? Is there funding allocated for education and outreach staff?
 - **Answer:** Council is considering a few items this budget cycle; some have stemmed from LARES; one of those includes education and outreach. There's a lot of available federal funding right now, so we're thinking about how we can leverage existing funding sources.
- **Question:** The state has a strong anti-donation clause; has there been any headway in the state legislature about this?
 - **Answer:** A New Mexico Climate Investment Center has been funded by the governor's budget. It is set up as a 501(c)(3) to address this issue. Federal funds will be directed through the 501(c)(3). There are also available tax credits at the state and federal level.
- **Question:** The actions seem to focus on CO₂ reduction. Emissions from Los Alamos don't impact our climate. Climate change is happening now; I'm concerned that the emphasis on emissions misses things that affect our health and safety.
 - **Answer:** The analysis focused on CO₂ reductions. We acknowledge that climate change is already happening and having real impacts on the community. One of the top actions that came out from the multicriteria analysis was conducting a climate vulnerability analysis, which would help us get a more comprehensive understanding of the climate risks the community faces, which can help us identify policies and solutions to

address those risks. There are some other actions on the list that focus on resilience. We would love to hear specific ideas if you have any.

- **Question:** What are the plans for revising and updating the CAP based on technology advancements and changing circumstances?
 - **Answer:** Adaptability is an important consideration here. The CAP will include an implementation plan, which will include information about how the plan will be maintained and monitored over time. This includes regular reviews, assessments of progress, and adjustments to strategies to ensure effectiveness and relevance over time.
- **Question:** Are there specific methodologies and references used in emissions reduction calculations?
 - **Answer:** We create our analyses to have transparent assumptions and data sources. Our analysis assumptions will be included in a detailed technical appendix in the CAP and can be provided upon request.
- **Question:** Will these actions also focus on reducing energy (e.g., eliminate commutes and reduce building energy use)?
 - **Answer:** Demand management is an important piece of this puzzle. We do have actions that promote energy efficiency in both the buildings and transportation sectors. We are open to additional ideas.
- **Question:** Has the County changed operational policy toward vehicles to end idling and move toward an EV fleet?
 - **Answer:** The County is currently revising the idling policy that will apply to County operations and will include education for the community. The County has also allocated funding to procure EV's at a minimum of 2 vehicles annually.
- **Question:** Will the CAP address residential PV microgrid (excess electricity passed back to the grid) by eliminating the limit on residential PV generation and better supporting residential PV?
 - **Answer:** The CAP does have a proposed action to address residential solar. "Support local and statewide standards for community solar programs, micro-grid establishment, and grid modernization. Continue to work with DPU to plan for enhanced distributive energy goals and assist with rooftop distributed solar installation by installing net meters to reduce energy costs. This action aligns with the County's Integrated Resource Plan, which recommends greatly increasing local solar generation and storage capacity."

INTERACTIVE FEEDBACK ACTIVITY

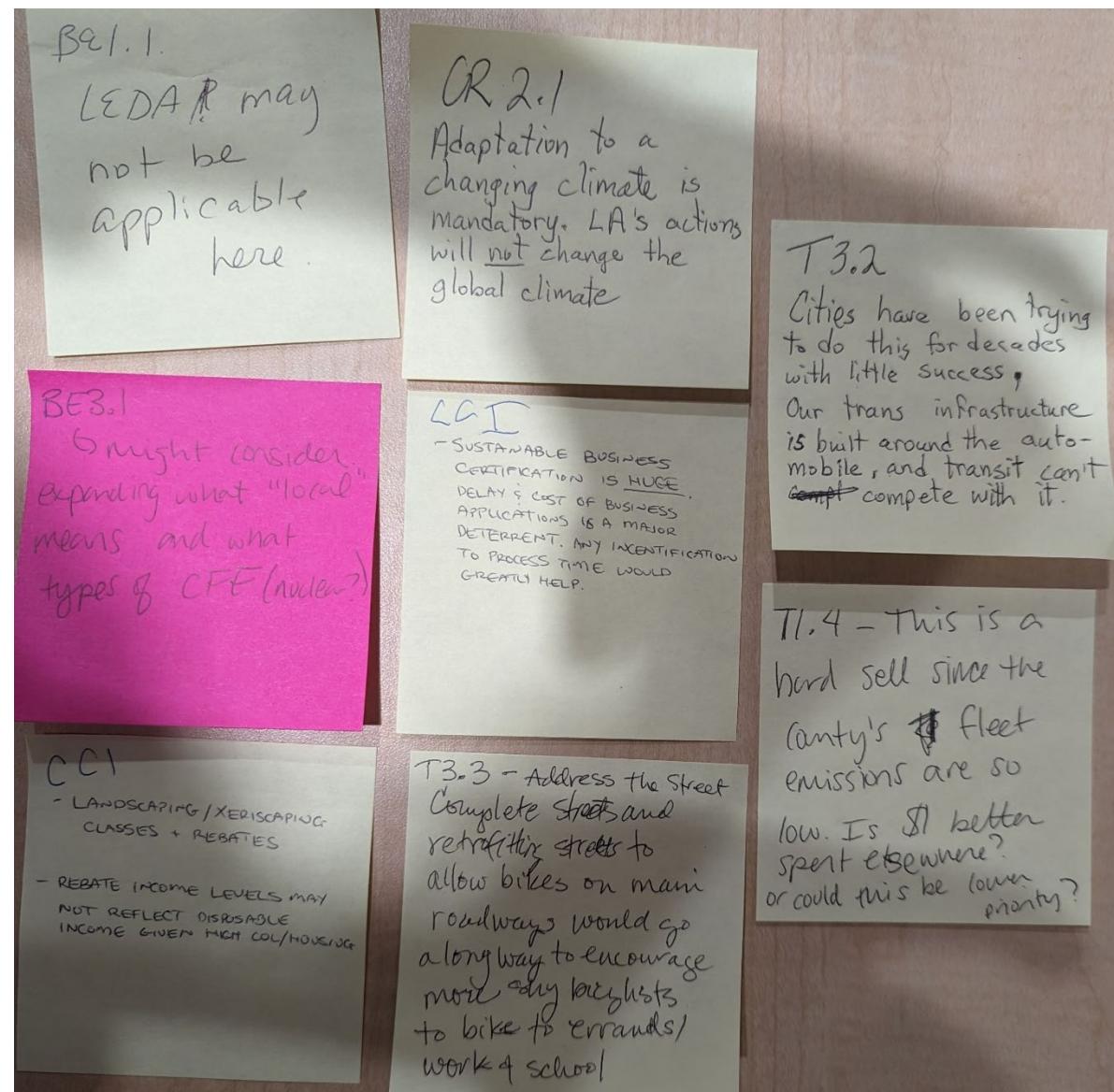
At the end of the presentation, polling, and Q&A, attendees were invited to provide additional feedback on the draft actions.

What feedback do you have about these proposed actions? (E.g., support, concerns, partnerships, implementation considerations, equity considerations)

Attendees submitted the following responses to this open-ended question:

Los Alamos CAP: Community Workshop Agenda

- BE1.1: LEDA may not be applicable here
- BE3.1: Might consider expanding what "local" means and what types of CFE (nuclear?)
- T1.4: This is a hard sell since the County's fleet emissions are so low. Is \$ better spent elsewhere? Or could this be lower priority?
- T3.2: Cities have been trying to do this for decades with little success. Our trans infrastructure is built around the automobile, and transit can't compete with it
- T3.3: Address the street; complete streets and retrofitting streets to allow bikes on main roadways would go a long way to encourage more shy bicyclists to bike to errands/work and school
- CR2.1: Adaptation to a changing climate is mandatory. LA's actions will not change the global climate
- CC1: Sustainable business certification is huge. Delay and cost of business applications is a major deterrent. Any incentivization to process time would greatly help
- CC1:
 - Landscaping/xeriscaping classes and rebates
 - Rebate income levels may not reflect disposable income given high COL/housing



OPTIONAL DEMOGRAPHIC QUESTIONS

At the end of the interactive polling questions and before the interactive feedback activity, workshop attendees were invited to complete an anonymous, optional demographic survey. The demographic survey was completed by 22 workshop attendees; results are summarized below. When census data is available, demographics from the workshop are compared with the demographics of Los Alamos County.^{1,2}

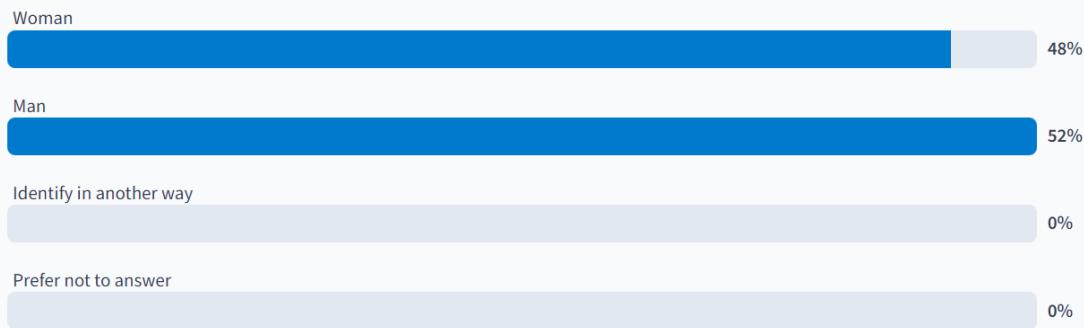
¹ [QuickFacts: Los Alamos County | census.gov](https://quickfacts.census.gov/factsuite/los-alamos-county-nm)

² [Los Alamos County, NM | censusreporter.org](https://censusreporter.org/place/0400000US31000)

1. What is your gender?

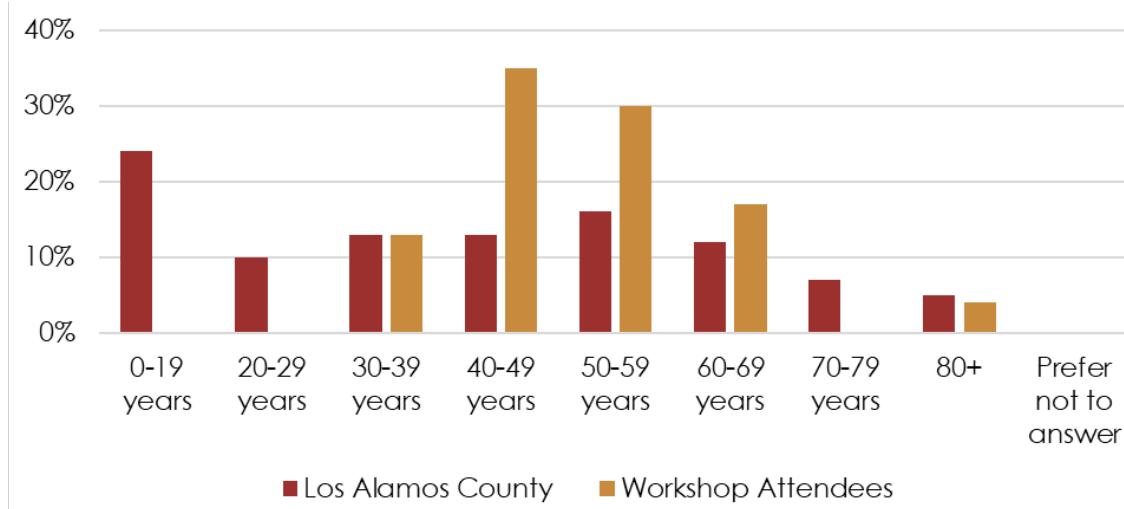
About half of workshop attendees identified as women (48%) and about half of attendees identified as men (52%).

1. What is your gender?



2. In which category is your age?

Workshop attendees were older on average than the Los Alamos County population, with a greater representation of people in the age category of 40–69 (82% of workshop attendees, compared to 41% of Los Alamos County residents).



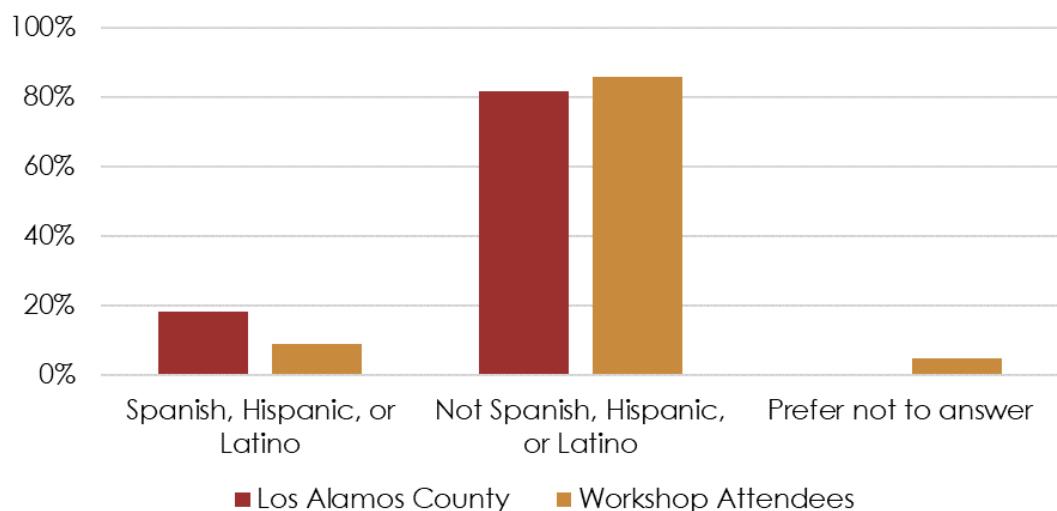
3. What is your race? (Mark one or more races to indicate what race you consider yourself to be.)

The majority (91%) of workshop attendees identified as white, which is similar to the Los Alamos County population (86.8%). No workshop attendees identified as Asian, Asian Indian, or Pacific Islander, compared to 7.5% of the Los Alamos population. Note that the Census reports race slightly differently than the workshop questions; see the Census linked above¹ and the N/As in the table below for some of these differences.

	Los Alamos County	Workshop Attendees
American Indian or Alaskan Native	1.5%	0%
Asian, Asian Indian, or Pacific Islander	7.5%	0%
Black or African American	1.4%	0%
White	86.8%	91%
Two or more races	2.7%	N/A
Other	N/A	5%
Prefer not to answer	N/A	5%

4. Are you Spanish, Hispanic, or Latino?

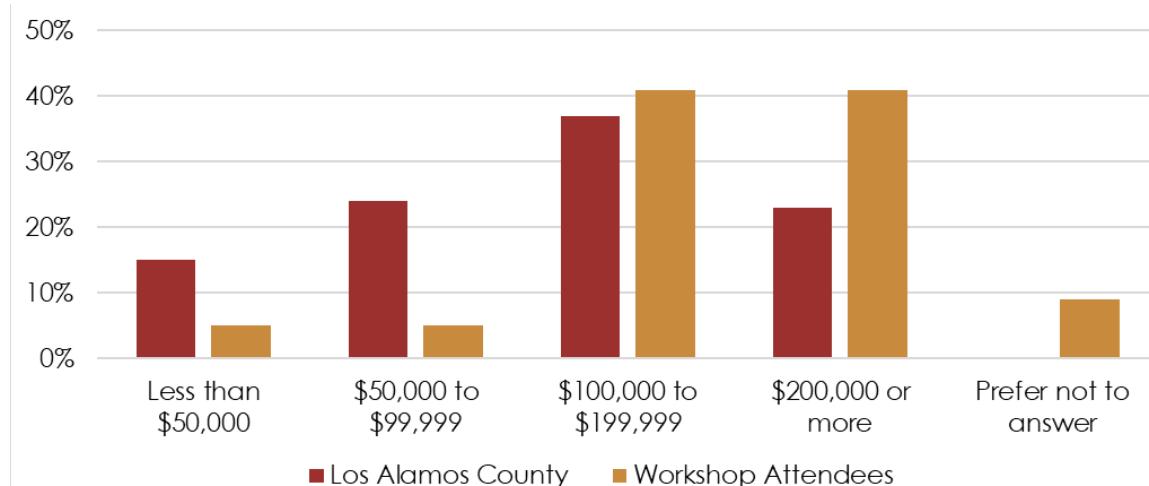
The majority (86%) of workshop attendees did not identify as Spanish, Hispanic, or Latino, compared to 82% of the Los Alamos County population.



5. How much do you anticipate your household's total income before taxes will be for the current year? (Please include in your total income money from all sources for all persons living in your household.)

Workshop attendees had higher household incomes on average than the Los Alamos County population, with a greater representation of people in the \$200,000

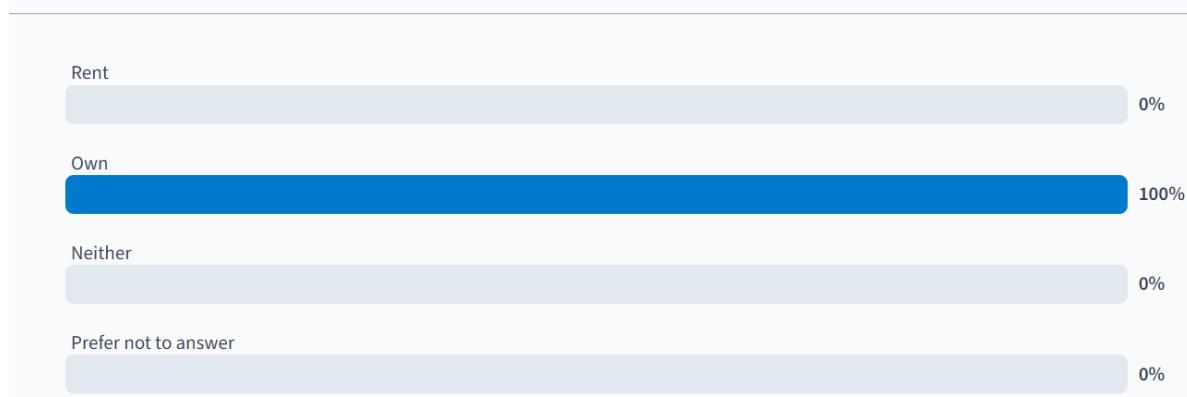
or more category (41% of workshop attendees, compared to 23% of Los Alamos County residents).



6. Do you rent or own the place where you live?

All workshop attendees owned their home.

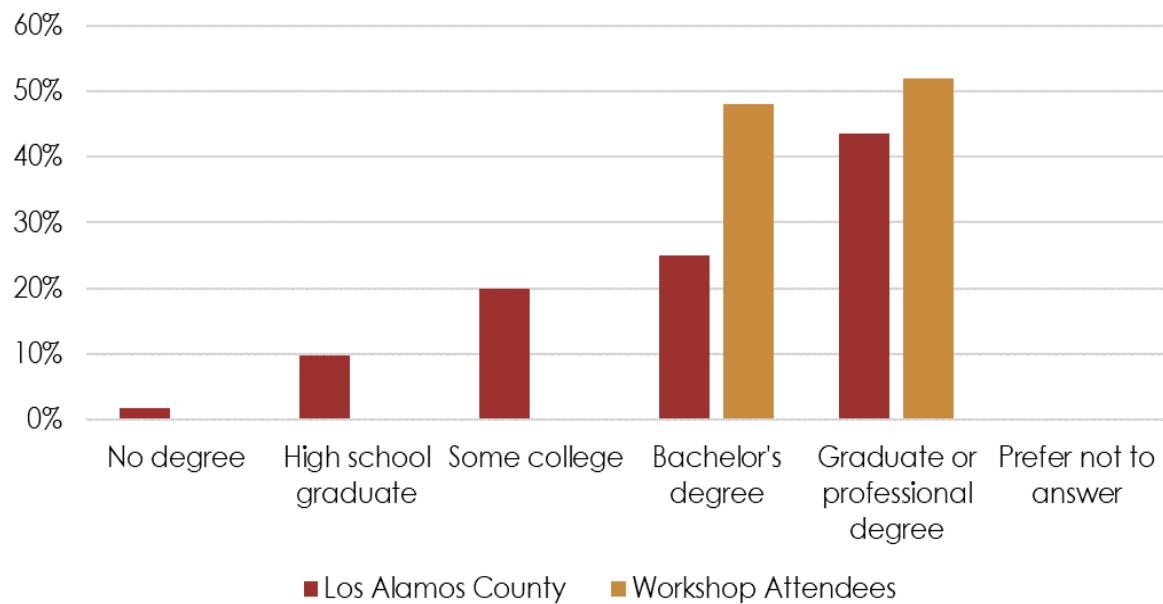
6. Do you rent or own the place where you live?



7. What is the highest level of education you have completed?

Workshop attendees had higher educational attainment on average than the Los Alamos County population, with a greater representation of people holding bachelor's and graduate or professional degrees (100% of workshop attendees, compared to 69% of Los Alamos County residents).

Los Alamos CAP: Community Workshop Agenda

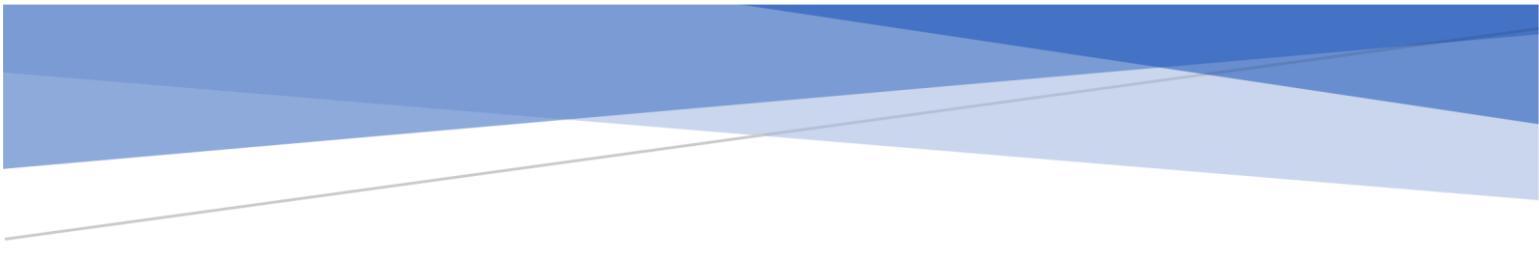




APPENDIX G.

Focus Groups and Individual Interviews Summary





**Individual Interview Report
Los Alamos County Climate Action Plan
June 1, 2024**

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Executive Summary and Overview

The purpose of this confidential assessment was to capture key opinions, observations, and attitudes from a select group of individuals in Los Alamos County related to views on the environment and climate change and to discuss and receive feedback on some of the proposed initiatives that have arisen in the County's draft Climate Action Plan (CAP).

A total of nine individuals were interviewed in a virtual interview process. Interviewees included one student, two teachers, one business community leader, one county employee, a retired engineer, and one environmental consultant, a previous county councilor, and a non-profit executive.

Below is a summary of findings with initial recommendations. Responses to the assessment interviews were taken verbatim from virtual interviews. Personal identifiers have been removed.

Overview

The County of Los Alamos has been working on a CAP, requested by the County Council, starting 2023. The impetus for the plan is the recognition that global climate change represents an ever-increasing threat to the health and wellbeing of people and the planet and greenhouse gas emissions from human activity are changing our climate in ways that put the Los Alamos community at risk.

A CAP provides a roadmap for reducing the community's greenhouse gas emissions and preparing the county for unavoidable impacts of climate change. By taking action to reduce emissions and build resilience to climate risks, the county will position itself to be ahead of the curve and protect the health and wellbeing of our residents and economy.

As part of this work, the County has administered completed a Greenhouse Gas Inventory, administered a public survey to County residents, developed a strategy and action list, provided presentations and displays at many community events and recently hosted a community open house. As part of this ongoing work, AMM Consulting was charged with conducting individual interviews of various stakeholders.

Key Themes

Common themes that surfaced among the interviewees included the following:

- Expressing a genuine love of the outdoor environment of the County.
- Appreciation of the community being small, safe and clean.
- Identification that affordable housing is a big challenge in the area, leading to more commuters and overall transportation challenges.
- Acknowledgement that there are many energy inefficient buildings in the community, both commercial and residential.
- Frustration with traffic and the number of commuters coming into the area, both from a safety and pollution perspective.
- Identification of the need for budget and infrastructure improvements to effectively take actions.
- Acknowledgement that some actions may not be economically viable and costs of proposed actions could be a challenge for some families and businesses.

Life in Los Alamos

Interviewees varied in the time they have lived in Los Alamos, ranging from recent newcomers (moving to Los Alamos in the last few years) to living in the community for more than 25 years. Every interviewee expressed that the thing they like most about the area was the ability to access nature in a beautiful mountain town, participate in outdoor activities such as hiking and skiing, and enjoy amenities such as the aquatic center. People indicated that the schools are excellent and that they feel safe living in the area.

Lack of convenience to large scale shopping, an airport and lack of a variety of restaurants were mentioned as challenging aspects of living in the area, as well the cost of living, especially the high cost of housing. Several mentioned that they felt it was hard to connect with other people when first coming to the area, especially for people of color, and that the community lacked much of the rich culture found in other areas of New Mexico.

All interviewees brought up their concerns and frustrations with transportation in the area, especially citing the number of commuters coming into the area to work at LANL. Other transportation concerns mentioned were safety issues, speeding and the lack of public transportation options.

Personal Commitment to the Environment

All interviewees said that they take some action in their lives to reduce their impact on the environment. Actions included adding insulation to their home, walking or biking to work or to do errands, reducing lawns and engaging in water conservation efforts, moving to more energy efficient appliances and, in some cases, switching to electric appliances. One interviewee had solar panels on their home and another had purchased an electric vehicle.

Most mentioned their commitment to recycling, reducing consumption and participating in reuse efforts such as purchasing used clothing. A few other initiatives mentioned by interviewees included carpooling, reducing plastic use, composting and reducing meat consumption. One interviewee communicated his concern about the warming climate due to climate change but also questioned if these smaller efforts would really make a difference for the planet.

Several individuals mentioned their broader efforts in the community including educating young people on climate change and other environmental activities such as serving on various regional committees that address environmental issues, participating in various Earth Day activities and community clean up days, and engaging with policymakers on environmental issues at the state and federal levels. One interviewee said that area residents care about the environment but don't take much action around that, providing the opposition to a plastic bag ban ordinance as an example.

Area Threats to the Environment

Transportation and water were the leading answers to what the biggest current threat to the environment was in the region. Both water quality and quantity were frequently mentioned in combination with the constant threat of wildfire which has threatened the watershed for some years. Interviewees also expressed concerns about outdated buildings that were not energy efficient and new building construction that may not be energy efficient.

One interviewee mentioned the legacy of contamination related to LANL activities are the most significant environmental threat in the area. Another mentioned that there was a controversy around a proposed transmission line but also pointed out that that new line could bring more renewable energy to the region.

The County Climate Plan

All interviewees had some knowledge that the CAP process was occurring, though the level of knowledge varied significantly, and all were supportive of the work at various levels. Some interviewees heard about the plan from word of mouth, several interacted with Angelica as she promoted it at certain community events and others learned of it by participating in some kind of civic engagement such as a committee. Only a couple of interviewees indicated that they were familiar with any of the proposed actions in the plan prior to the interview.

All those interviewed felt that the County has some role in implementing a CAP. The business community leader indicated that they saw the CAP as a tremendous opportunity for local businesses to reduce energy usage and costs. Another interviewee stressed the importance of tying the work on the CAP to the community health plan. The City of Fort Collins, CO, was mentioned as being exemplary on their climate action plans.

The Plan

Interviewees were shown the results of the County's Greenhouse Gas Inventory and a list of the top ranked initiatives that would reduce greenhouse gas emissions in the area. (See Appendix A)

Most interviewees indicated that actions related to transportation should be a priority. All interviewees addressed housing in respect to the high cost of housing, citing that many people who work in the County cannot live in the County, ultimately adding to the transportation emissions and overall road safety problems.

None of the interviewees opposed any of the proposed actions but thought some should be a priority such as transportation and energy efficiency. Most acknowledged that Los Alamos County was doing well adding renewable energy. One interview expressed a strong support for larger scale renewable projects, such as community solar, versus roof top solar on homes and businesses, feeling that large scale renewable makes a more significant difference in impacting climate change.

Several interviewees were unfamiliar with the urban forest/tree stewardship concept and a couple of interviewees were not familiar with the terms multi-modal transportation, construction and demolition recycling, reuse and mixed use, and transit-oriented development policies. Once they were explained, they were met with overall support.

Factors to Consider in the CAP

Several interviewees stressed that having infrastructure in place is important when considering implementation of some actions such as alternative fuel vehicles. One cited an experience with another community that was not well prepared to fuel the alternative fuel vehicles they had purchased.

Several interviewees mentioned that human behavior is an important factor to consider when adding programs, incentives and ordinances, mentioning that local residents are often still not compliant with

recycling and solid waste program rules. They also mentioned that affordability of solutions for some residents needed to be considered when identifying priorities.

Though all interviewees felt that reducing emissions was important, there were varied opinions on whether that should be done with rules and ordinances versus education and incentives. Most favored a bit of both. One interview suggested the following approach – passing and implementing codes is priority, followed by development of incentives, and then working on community education. Though building codes were favored by some interviewees, they also acknowledge that the cost of residential and commercial buildings in the area is high, and worried that codes could impact these costs. One interviewee felt that the priority and top consideration factor for all this work should be conservation of land and protecting wild spaces.

Several interviewees mentioned that the County needed to acknowledge what it could and couldn't do and pursue "easy wins" that would be accepted by the public.

In addition to indicating general support for the CAP, some interviewees also expressed concerns about possible obstacles to the plan. Some mentioned that entities in the area, such as the school district, would not make decisions based on long-term financial benefits rather than short-term investment costs. Others indicated that residents can be apathetic and don't like to be told what to do. Several mentioned the lack of skilled labor available in the area to serve current needs.

Suggestions from Individual Interviews

Transportation

- Put in urban bike trail in downtown and connect all area bike trails.
- Add more bike trails and other non-motorized transportation options.
- Expand public bus service to evenings and weekends.
- Implement traffic calming measures throughout the community.
- Implement bicycle check-out rental stations
- Purchase a hydrogen transit bus.
- Construct a main transit center that would transport people to LANL.
- Develop carpooling initiatives/programs.
- Incentives for electric vehicle adoption.
- Add vans to the public transportation fleet to increase options for residents
- Increase frequency of the public transportation between Los Alamos and White Rock
- Promote activities such as biking and carpooling by charging for parking, offer those who do not park a monthly incentive.
- Start a separate LLC that would purchase vans to help transport employees to LANL, LANL could subsidize.
- Add express buses that go from one specific point to another.
- Explore bike to school project that the City of Las Cruces is implementing.

Commercial and Residential Buildings

- Identify resources to help lower income families with energy efficiency projects for their homes.
- Develop green building standards/codes at a local level.
- Get funding to have someone, perhaps a LANL retiree, do energy benchmarking for businesses and make recommendations for energy efficient improvements. (NMSU program)
- Develop an educational program targeting small businesses and ways for them to save energy and reduce greenhouse gas emissions.
- Offers energy audits for home and businesses.
- Help people plan for things like heat pumps, mini splits and insulation.
- Develop incentives for businesses to do energy efficiency and renewables.
- Target landlords with incentives and education.
- Businesses need programs that help their bottom line.

Water

- Need to promote water conservation and encourage xeriscaping.
- Need plan to manage stormwater.
- Quantify the region's groundwater sources, make a plan.

Renewable Energy

- Add more solar on buildings, especially on parking lots where cars and trucks could benefit from the shade.

Waste

- Develop a partnership between the County and the Los Alamos school district related to food waste and other solid waste.
- Pull glass out of the solid waste stream.

Education

- Education for citizens especially on savings benefits of some of these actions. Get people invested, help the community feel that it is making progress in these areas.
- The County needs a person who would be the point for all this work – collecting data, educating businesses and residents, serves as the champion of the CAP for the school district, LANL and other entities in the County.

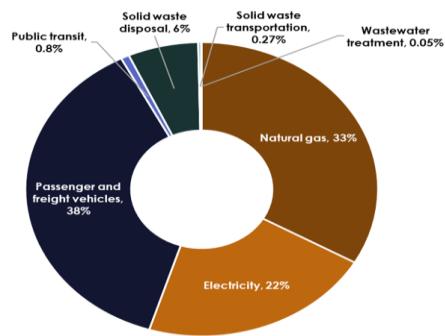
Partnerships

- Importance of working with LANL
- Need more people going into the trades.

Appendix A

Community-Wide Geographic Emissions Overview

- Community-wide emissions were an estimated 137,670 MTCO₂e in 2022.
- The community's largest emissions sources in 2022 were from combining **building energy** (55%) and **transportation** (38%).
- Los Alamos National Laboratory's (LANL) emissions are not included due to data limitations.



Sector-Based Emissions Forecast: CAP Actions

		Cumulative Reductions (MTCO ₂ e)		
		2030	2040	2050
BE1.3	Encourage energy efficiency and electrification retrofits	165	3,492	8,364
BE1.4	Adopt green building standards	843	20,962	63,563
BE2.1	Incentivize electrification retrofits	65	1,315	3,027
BE2.2	Develop a contractor training program	32	654	1,506
BE2.3	Electric equipment replacement at burnout	672	121,922	447,772
BE3.1	Promote local renewable energy	3,072	5,030	5,030
T1.1	Promote EV adoption	1,878	18,248	58,923
T1.2	Develop EV infrastructure plan	1,878	10,236	10,236
T2.1	Expand mixed-use, transit-oriented development policies	8,255	15,112	17,986
T3.2	Advocate and partner regionally to improve transit network	244	376	376
T3.3	Encourage multimodal transportation	244	1,208	1,208
T3.4	Expand non-motorized transportation options and accessibility	243	372	372
MC1.3	Implement food waste prevention and diversion program	105	284	467
MC1.4	Promote C&D recycling and reuse	-	471	1,269
CC1.1	Develop a sustainable business certification	-	194	456
NS1.1	Promote urban forest stewardship and tree preservation	3,140	34,543	65,946



Focus Group Report
Los Alamos County Climate Action Plan
June 1, 2024

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OVERVIEW AND EXECUTIVE SUMMARY

The purpose of this confidential assessment was to capture key opinions, observations, and attitudes from a several different groups in the Los Alamos County area related to views on the environment and climate change and to discuss and receive feedback on some of the proposed initiatives that have arisen in the County's draft Climate Action Plan (CAP).

The County of Los Alamos has been working on a Climate Action Plan, requested by the County Council, starting 2023. The impetus for the plan is the recognition that global climate change represents an ever-increasing threat to the health and wellbeing of people and the planet and greenhouse gas emissions from human activity are changing our climate in ways that put the Los Alamos community at risk.

A CAP provides a roadmap for reducing the community's greenhouse gas emissions and preparing the county for unavoidable impacts of climate change. By taking action to reduce emissions and build resilience to climate risks, the county will position itself to be ahead of the curve and protect the health and wellbeing of our residents and economy.

As part of this work, the County has completed a greenhouse gas Inventory, administered a public survey to County residents, developed a strategy and action list, provided presentations and displays at many community events and recently hosted a community open house.

As part of this ongoing work, AMM Consulting was charged with conducting several focus groups in Los Alamos County. Three focus groups were conducted in May of 2024 to gather additional feedback from the following areas – young working families, young people including high school students and young professionals, and County employees who work in various capacities. Each focus group started out with general introductions and questions related to general thoughts about living in the area, before getting into climate specific question areas.

Common themes that surfaced among all focus groups included the following:

- Expressing a genuine love of the outdoor environment of the County.
- Appreciation of the community being small, safe and clean.
- Identification that affordable housing is a big challenge in the area, leading to more commuters.
- Frustration with traffic and the number of commuters coming into the area, both from a safety and pollution perspective.
- Acknowledgement of the changing climate in the area such as drought and wildfire, and water scarcity.
- Identification of the need for budget and infrastructure improvements to effectively take actions.
- Acknowledgement of the need for financial help for families to reduce energy consumption, especially in older housing.

FAMILY FOCUS GROUP

Approximately 12 parents of young children attended a focus group on May 21, 2024, at the local non-profit organization, Family Strengths Network, where families can connect, participate in classes and find educational resources on parenting. All participants live in Los Alamos County, were stay at home parents with young children other than one male who works at Los Alamos National Laboratory (LANL).

Similar to respondents in other focus groups, participants felt that some of the positive aspects of the Los Alamos area is that it is a small, safe and clean community in a beautiful mountainous environment and that the community has an excellent education system and is a good place for people to raise kids.

Several negative aspects of living in the community were mentioned including the lack of restaurants and other businesses, the housing market costs, the lack of access to shopping and resources found in larger communities, and the lack of access to health care options. Other negative aspects mentioned included a lack of support services for families with special needs children, lack of day care options and general lack of overall support for families who do not have family support in the region. Several mentioned that they lived in a “maintenance desert” because Los Alamos does not have contractors that do repair work and other trades work.

The County Climate Action Plan

All interviewees had some knowledge that the CAP process was occurring but were unfamiliar with the details of the process and proposed actions. One individual suggested that the County started work on a CAP to please the community after making a challenging decision of closing a walking space to put in a putting green/golf course area.

All participants agreed that climate change was a problem, one mentioning that lower income communities are disproportionately impacted by climate impacts. Another individual indicated that they didn't think the United States could make much of a difference related to climate change and that other countries needed to take action to reduce emissions with the guidance of the U.S. Another participant said they felt that all of Los Alamos County was “green” and already engaged in actions to protect the climate.

All participants indicated that they engage in some activities to positively impact the environment and the climate such as recycling and purchasing used clothing and other items. One individual mentioned that they take advantage of good access the County offers for trash and recycling bins in town. One family had added solar panels and an induction range and another stated that they took significant efforts to vote for people who cared about the environment.

Participants identified factors that they felt the County should consider when finalizing actions in a plan, included ensuring that infrastructure is in place to support proposed actions, identifying how programs would or would not be affordable for residents, and addressing the challenge of the lack of availability of contractors to perform the work. One individual stated that the County needs to be very intentional in prioritizing CAP actions, reflecting what the community wants. Others said that the most economically viable options should be prioritized. They encouraged the County to consider sustainability in all its work, regardless of the CAP.

The Plan

Interviewees were shown the results of the County's Greenhouse Gas Inventory and a list of the top ranked initiatives that would reduce greenhouse gas emissions in the area. (See Appendix A) Participants made the following suggestions.

Plan Suggestions from Family Focus Group Participants

Transportation

- Need for public transportation to Santa Fe and Albuquerque airports.
- Relocate transit center.
- Encourage biking with the addition of more bike paths.
- Partner with LANL on shared bicycle programs.
- Provide rebates for the purchase of electric vehicles.
- Add a downtown public transit transfer point.
- Add electric plug-in vehicles to the County fleet.
- Increase public transit between Los Alamos and White Rock, schedule is not efficient, develop a software application for people to see transit availability.

Commercial and Residential Buildings

- Offer incentives to landlords to make their properties more energy efficient.
- Have a benchmark program where energy usage is tracked, people receive some kind of credit for saving energy.
- Incentivize solar with electric vehicle charging capabilities.
- Explore getting the County completely off natural gas.

Waste Management

- Facilitate a community clothing swap once or twice a year.
- Pass an ordinance against the use of Styrofoam®.
- Get better produce in stores in the area. The quality of produce is not good in the County area, which increases food waste.

Education

- Offer opportunities for education related to "low hanging fruit" such as turning down the thermostat, clothing reuse, composting and solid waste reduction.
- Educate the public about the County's Home Renewal Program.

Renewable Energy

- Increase incentives for renewable energy. (A few individuals expressed extreme dissatisfaction with a recent decision by the County Councilors related to incentives for residential solar indicating that the County is disincentivizing people to install roof top solar.)

YOUNG PERSON FOCUS GROUP

Six individuals participated in a virtual focus group on May 22, 2024. The group was comprised of older high school students and young professionals, all who lived in Los Alamos County.

All participants mentioned their love of the outdoors, the mountains and access to outdoor recreational activities as what they like most about the area. Also mentioned were the creativity and passion of many people in the community and the support for environmental activism. Several negative aspects of living in the community mentioned included the traffic, especially the number of commuters into Los Alamos, the number of empty buildings, the isolation and lack of infrastructure (specifically the limited power and water resources), the risk of wildfire, and that some area residents are perceived as not open to change.

All individuals in this focus group were passionate about the climate issue and stated that they are actively involved in activities to protect the environment. These actions included commuting by bicycle and foot, adhering to plant-based diets, planting trees, investing in solar panels, reducing material consumption, reusing clothing and other items, and growing their own food. Several mentioned actions they pursue at work to reduce energy and water consumption and reduce waste streams. Several were active in activities that promote environmental values including the high school Eco Club, the Citizens Climate Lobby and the Earth Ship Academy.

Focus group individuals expressed their concern with the changing climate, noting that there was less moisture in the area, warmer temperatures, increased fire risk and scarcity of water resources. Many felt that the pollution from commuters to Los Alamos was of concern and that the lack of affordable housing contributed to this problem. One individual indicated that there is an increasing conflict between wildlife and humans as wildlife is forced out of their habitat due to fire and drought. The group expressed that the younger generation is frustrated with the way that climate change is impacting communities and the perceived lack of actions to address the challenge.

The County Climate Action Plan

All interviewees were supportive of the County pursuing a CAP and had some knowledge that the CAP process and proposed actions but not all were familiar with the details of the process and proposed actions. The group was generally supportive of all the actions listed in Appendix A and added their own suggestions for inclusion in the plan (see below). Household income was mentioned as a challenge for participation in some initiatives such as electric appliance replacement and changing heating systems in older homes. Similar to other groups, they acknowledged the need for some implementation of rules or ordinances, but also felt that incentives were the best way to encourage residents to engage in planned actions.

Plan Suggestions From Youth Group Participants

Transportation

- Increase the gasoline tax in the region to fund electric vehicle infrastructure.
- Develop a public transit option between Santa Fe and Los Alamos.
- Add electric school buses to the school district fleet. (Buses are stored on County land, could the County add in the charging infrastructure?)
- Add more non-motorized transportation options that are safe and accessible.
- Add transit networks.
- Add toll booths in the area to decrease traffic, increase carpooling.
- Add trail options for people to bike between Los Alamos and White Rock.
- Increase electric vehicle infrastructure charging (depending on where the energy would come from)

Commercial and Residential Buildings

- Offer tax credits for energy efficiency initiatives.
- Implement green building standards, focus on government buildings.
- Offer other incentives for residents to invest in energy efficiency and water conservation initiatives.

Education

- Educate people on the difference they can make by engaging in these types of actions.

Resilience

- The County is not prepared to help people with the health risks associated with climate impacts.
Ex: forest fires

Renewable Energy

- Add solar parking structures throughout the community, such as the Smith's grocery store.

Land Management

- Create a fire line.
- Grow pollinator plants at the greenhouse at the high school.
- Get rid of area invasive species, such as salt cedar and Russian olive.
- Add biodiversity programs.
- Proactively plan for restoration activities after wildfires.
- Consider land conservation in all County initiatives.
- Create more green spaces and microclimates.
- Create features in landscapes that capture water,
- Identify ways that residents can engage in growing food.
- Create opportunities for disabled people to interact with nature.

People/Partnerships

- Leverage the educated, intelligent people (youth all the way up to seniors) in Los Alamos County to help with sustainability efforts.
- Get LANL and its employees engaged in the area's climate actions, through programs such as volunteer programs, matching donations and other programs.
- Engage LANL in paying for some climate action plan initiatives.
- County should collaborate with other communities outside of the county.

COUNTY EMPLOYEE FOCUS GROUP

Approximately 17 county employees attended a focus group on May 23, 2024, at the Municipal Building Complex. Employees represented a variety of areas including fleet management, transit, water and energy, community development, traffic/street management, capital projects, community planning, environmental services, procurement, waste management and environmental services. All but two of the attendees lived outside of Los Alamos County and commute to work from Española, Taos, Santa Fe and Pecos.

Like respondents in other focus groups, they felt that some of the positive aspects of the Los Alamos area is that it is a small, safe and clean community, is in a beautiful mountainous environment, has an excellent education system and is a good place for people to raise children. They indicated that people in the area are open to new ideas and are very involved in the community and that the County does a lot for community members. Focus group attendees said that they really like working for the County, they liked their co-workers, and that they feel they all work together well to get things accomplished.

Focus group members listed a variety of negative aspects of the Los Alamos area including the lack of restaurants and other businesses, the high cost of living, and the lack of diverse cultures found in other parts of New Mexico. Many participants felt that they worked in a community of residents that had a very “entitled” mentality and that area residents often had exhaustive input into processes making projects very painful to accomplish. Focus group participants, similar to other groups, commented on the commuter traffic into Los Alamos each morning. Though they mentioned there was a Park and Ride with a commuter bus available, it was not convenient for most people’s work schedules and added a considerable amount of time to their already long days.

Negative aspects specific to their work at the County included what they felt was a lack of trust and unrealistic expectations of County Councilors in staff, a lack of full staffing and a general feeling that they were getting more responsibilities constantly added to their jobs occasionally making them feel overwhelmed and overworked.

The County Climate Action Plan

As previously mentioned, all interviewees had some knowledge that the CAP process was going on but were unfamiliar with the details of the process and proposed action. Initial reactions to hearing that a plan was going to be developed ranged from wondering how this would impact their jobs, if there would be regulations or ordinances involved, whether there would be budget dollars available to get actions completed and what perspectives related to climate were being explored. Some participants said they were nervous about the implementation, feeling that the plan was going to be aspirational and have money thrown toward it but not really address the “nitty gritty” of implementation. One example noted was the lack of energy auditors available throughout the state and another expressed concerns that their current contractors would not agree to some of the actions. A couple of individuals indicated that they thought developing a plan was a good idea and that they were surprised a climate plan didn’t already exist.

Before reviewing any proposed actions, focus group members voiced a variety of concerns about the proposed CAP. Several mentioned concerns about potential plans to get rid of natural gas, indicating that the current electric utility system could not handle full electrification and would present a single

source of failure for energy. Multiple concerns were mentioned about execution of a CAP including costs and availability of items related to procurement and maintaining inventory, how the County Council would direct the work, whether there would be community buy-in for actions and whether actions violate the New Mexico Anti-donation Clause. One individual suggested that each County department would need to look at proposed actions relating to their own area and determine if actions were even feasible. Another interviewee expressed concern with getting contracts in place to do the work, citing an already slow process of getting contracts in place with County vendors.

Plan Suggestions From Youth Group Participants

Interviewees were shown the results of the County's Greenhouse Gas Inventory and a list of the top ranked initiatives that would reduce greenhouse gas emissions in the area. (See Appendix A)

Focus group participants had a variety of questions and concerns as well as suggestions including the following:

Questions and Concerns

Purchasing

- The cost of “greener” equipment, such as heavy equipment is still cost prohibitive.

Customers

- If wealthier people fully electrify their homes, those who are still on natural gas will have to pay more in costs.
- Many electrification actions require that people upgrade wiring and electric panels in their homes, can be too costly.
- Many older homes in the area have natural gas boilers, converting to electricity would involve significant costs.

Program Initiation and Sustainability

- The County needs to make sure that infrastructure is in place before making these kinds of decisions, such as electric buses.
- The County needs to evaluate the “trickle down effect” of some of these initiatives, such as employees who do not have the knowledge and training to work on electric vehicles.
- What if the federal administration changes after the November election and policies promoting climate actions are not a priority?

Suggestions

Transportation

- County should go to four-day work weeks to decrease commuter transportation impacts.
- Focus on increasing public transportation ridership, 2 percent of people in the County don't have vehicles.
- Purchase a plug-in hybrid electric bus rather than an all-electric bus.

Water

- Push water recapture programs.

Commercial and Residential Buildings

- Many people have energy inefficient homes for the winter and summer weather. County should offer fans during the summer and weatherization services and energy efficiency kits.

Partnerships

- County needs to work with the Los Alamos school district on all initiatives.

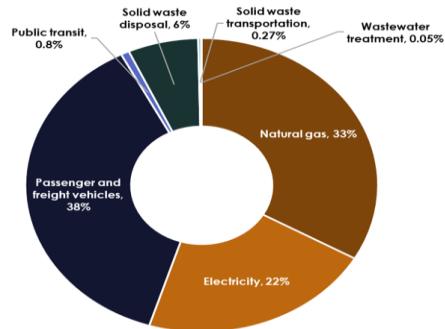
Renewable Energy

- The County could get more energy from green resources, and battery storage is a possibility.

Appendix A

Community-Wide Geographic Emissions Overview

- Community-wide emissions were an estimated 137,670 MTCO₂e in 2022.
- The community's largest emissions sources in 2022 were from combining **building energy** (55%) and **transportation** (38%).
- Los Alamos National Laboratory's (LANL) emissions are not included due to data limitations.



Sector-Based Emissions Forecast: CAP Actions

		Cumulative Reductions (MTCO ₂ e)		
		2030	2040	2050
BE1.3	Encourage energy efficiency and electrification retrofits	165	3,492	8,364
BE1.4	Adopt green building standards	843	20,962	63,563
BE2.1	Incentivize electrification retrofits	65	1,315	3,027
BE2.2	Develop a contractor training program	32	654	1,506
BE2.3	Electric equipment replacement at burnout	672	121,922	447,772
BE3.1	Promote local renewable energy	3,072	5,030	5,030
T1.1	Promote EV adoption	1,878	18,248	58,923
T1.2	Develop EV infrastructure plan	1,878	10,236	10,236
T2.1	Expand mixed-use, transit-oriented development policies	8,255	15,112	17,986
T3.2	Advocate and partner regionally to improve transit network	244	376	376
T3.3	Encourage multimodal transportation	244	1,208	1,208
T3.4	Expand non-motorized transportation options and accessibility	243	372	372
MC1.3	Implement food waste prevention and diversion program	105	284	467
MC1.4	Promote C&D recycling and reuse	-	471	1,269
CC1.1	Develop a sustainable business certification	-	194	456
NS1.1	Promote urban forest stewardship and tree preservation	3,140	34,543	65,946



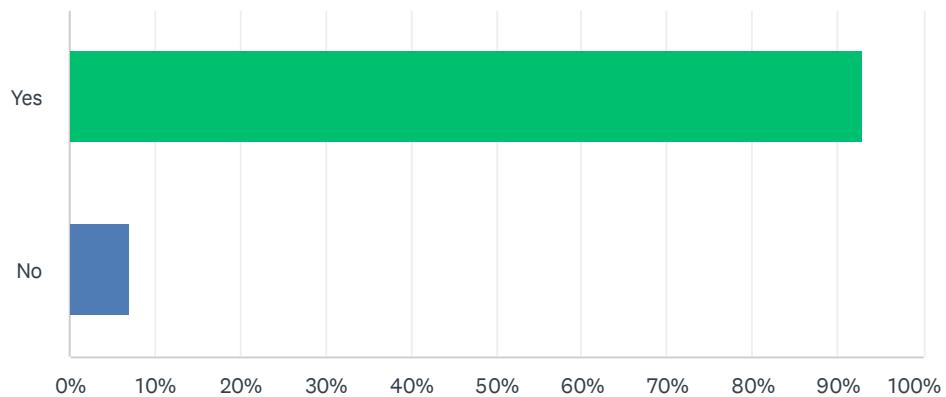
APPENDIX H.

County Commuting Survey Results



Q1 Were you employed by Los Alamos County in 2022?

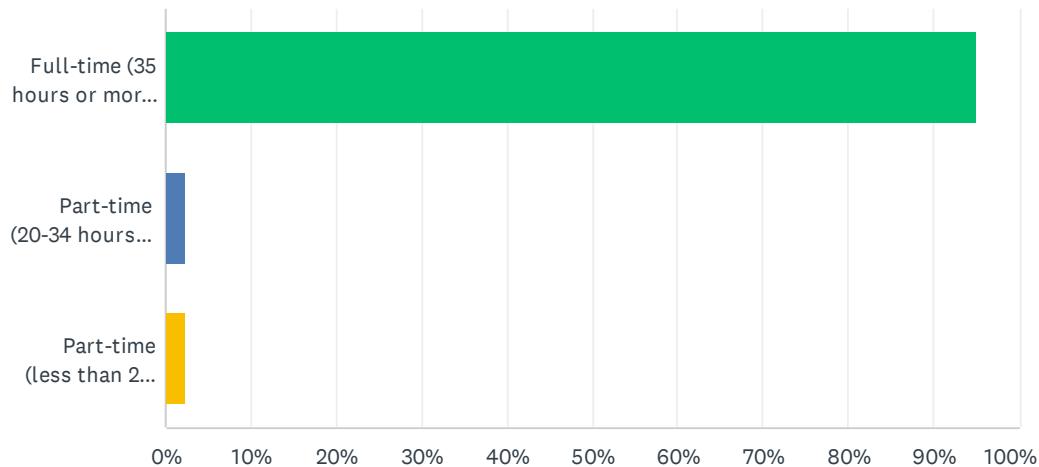
Answered: 315 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	93.02%	293
No	6.98%	22
TOTAL		315

Q2 Which of the following best describes your 2022 employment status?

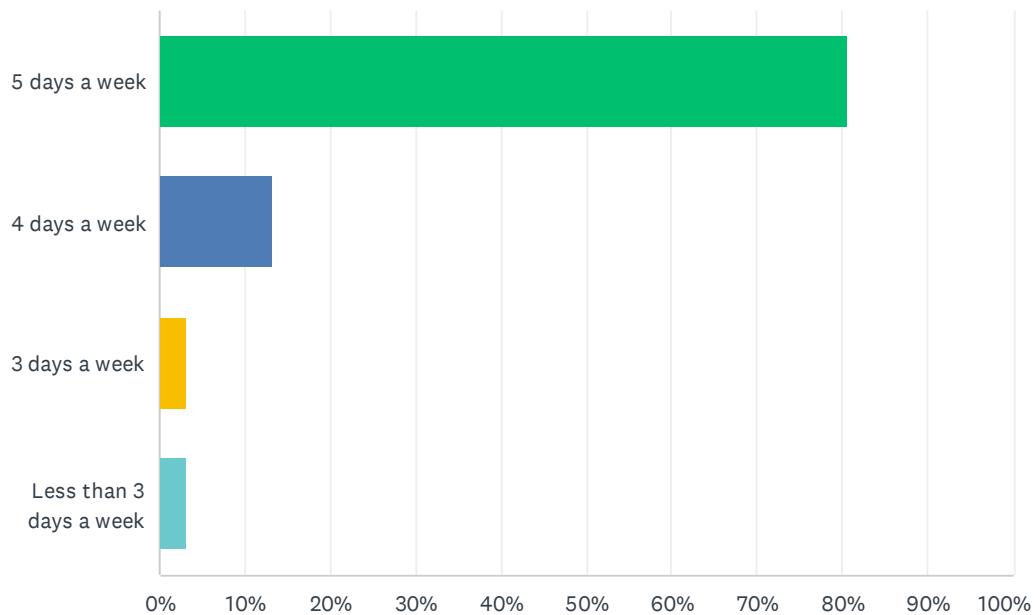
Answered: 288 Skipped: 27



ANSWER CHOICES	RESPONSES	
Full-time (35 hours or more each week)	95.14%	274
Part-time (20-34 hours each week)	2.43%	7
Part-time (less than 20 hours each week)	2.43%	7
TOTAL	288	

Q3 Which of the following best describes your 2022 work schedule?

Answered: 288 Skipped: 27



ANSWER CHOICES	RESPONSES	
5 days a week	80.56%	232
4 days a week	13.19%	38
3 days a week	3.13%	9
Less than 3 days a week	3.13%	9
TOTAL		288

Q4 ONE WAY, how many miles did you commute from home TO your usual work location in 2022? (Round to the nearest mile). DO NOT INCLUDE: Roundtrip or weekly distance or miles for errands or stops made daily on the way to work.

Answered: 259 Skipped: 56

#	RESPONSES	DATE
1	20	9/11/2023 7:24 AM
2	25 miles	9/11/2023 7:09 AM
3	15	9/11/2023 6:59 AM
4	35	9/10/2023 8:04 AM
5	2	9/8/2023 5:46 PM
6	2	9/8/2023 5:06 PM
7	20	9/8/2023 4:35 PM
8	12	9/8/2023 4:12 PM
9	10	9/8/2023 4:01 PM
10	95	9/8/2023 2:48 PM
11	9100	9/8/2023 2:46 PM
12	37	9/8/2023 2:45 PM
13	17	9/8/2023 2:08 PM
14	1	9/8/2023 2:06 PM
15	about 10 miles	9/8/2023 1:37 PM
16	29	9/8/2023 1:37 PM
17	.25	9/8/2023 1:21 PM
18	98	9/8/2023 1:21 PM
19	30	9/8/2023 1:18 PM
20	17	9/8/2023 1:13 PM
21	20 miles	9/8/2023 1:13 PM
22	3	9/8/2023 1:12 PM
23	8	9/8/2023 1:00 PM
24	26	9/8/2023 12:59 PM
25	48	9/8/2023 12:57 PM
26	23	9/8/2023 12:55 PM
27	1.5 miles	9/8/2023 12:51 PM
28	30	9/8/2023 12:51 PM
29	25 miles	9/7/2023 8:30 AM

2022 Los Alamos County Employee Commute

30	59	9/6/2023 10:16 PM
31	8 miles	9/6/2023 3:25 PM
32	2	9/6/2023 1:37 PM
33	5	9/6/2023 1:32 PM
34	5	9/6/2023 12:59 PM
35	22	9/6/2023 12:07 PM
36	26	9/5/2023 1:42 PM
37	28 miles	9/5/2023 11:24 AM
38	40 miles	9/5/2023 8:44 AM
39	15	9/5/2023 6:51 AM
40	10	9/5/2023 6:19 AM
41	21	9/2/2023 2:28 PM
42	60	9/1/2023 6:29 PM
43	33	9/1/2023 5:44 PM
44	12	9/1/2023 4:30 PM
45	50	9/1/2023 1:55 PM
46	80 miles	9/1/2023 1:42 PM
47	40	9/1/2023 1:14 PM
48	81	9/1/2023 11:26 AM
49	28	9/1/2023 11:25 AM
50	28 miles	9/1/2023 10:52 AM
51	40	9/1/2023 10:35 AM
52	15	9/1/2023 10:17 AM
53	11	9/1/2023 10:15 AM
54	35	9/1/2023 10:12 AM
55	99	9/1/2023 10:12 AM
56	5	9/1/2023 10:10 AM
57	7 miles	9/1/2023 10:10 AM
58	9	9/1/2023 10:09 AM
59	25	9/1/2023 10:08 AM
60	24	9/1/2023 10:08 AM
61	36	9/1/2023 9:49 AM
62	12	9/1/2023 9:43 AM
63	30	9/1/2023 9:36 AM
64	39	9/1/2023 9:30 AM
65	20	9/1/2023 9:23 AM
66	50	9/1/2023 9:20 AM
67	22 miles	9/1/2023 9:20 AM

2022 Los Alamos County Employee Commute

68	3 miles	9/1/2023 9:18 AM
69	10 miles	9/1/2023 8:32 AM
70	60	8/31/2023 11:19 AM
71	25	8/31/2023 7:44 AM
72	24	8/31/2023 7:23 AM
73	3 miles	8/31/2023 7:10 AM
74	60	8/31/2023 12:12 AM
75	1	8/30/2023 5:23 PM
76	75	8/30/2023 1:06 PM
77	23	8/30/2023 11:55 AM
78	35 miles per way per day (approx. 7,350 one way)	8/30/2023 11:54 AM
79	22	8/30/2023 11:08 AM
80	15	8/30/2023 10:32 AM
81	23	8/30/2023 10:28 AM
82	24	8/30/2023 10:20 AM
83	40	8/30/2023 10:04 AM
84	15 miles	8/30/2023 8:04 AM
85	30	8/30/2023 7:45 AM
86	30 mi	8/30/2023 6:06 AM
87	25 miles	8/29/2023 5:28 PM
88	3	8/29/2023 4:00 PM
89	40 miles	8/29/2023 2:44 PM
90	35	8/29/2023 1:09 PM
91	25	8/29/2023 1:09 PM
92	90	8/29/2023 11:43 AM
93	100	8/29/2023 11:40 AM
94	7	8/29/2023 11:23 AM
95	46	8/29/2023 10:39 AM
96	90 Miles	8/29/2023 10:28 AM
97	735	8/29/2023 10:24 AM
98	45	8/29/2023 10:15 AM
99	1	8/29/2023 9:47 AM
100	45	8/29/2023 8:50 AM
101	20	8/29/2023 8:31 AM
102	30 miles	8/29/2023 8:18 AM
103	46 miles one way	8/29/2023 8:15 AM
104	62	8/29/2023 8:14 AM
105	5	8/29/2023 8:10 AM

2022 Los Alamos County Employee Commute

106	8 miles	8/29/2023 7:45 AM
107	12	8/29/2023 7:39 AM
108	40 miles	8/29/2023 7:27 AM
109	7800	8/29/2023 7:27 AM
110	98	8/29/2023 7:18 AM
111	11	8/29/2023 7:14 AM
112	26 miles	8/29/2023 7:14 AM
113	25	8/29/2023 7:13 AM
114	70	8/29/2023 6:56 AM
115	30	8/29/2023 6:55 AM
116	60 miles	8/29/2023 6:46 AM
117	25 miles	8/29/2023 6:41 AM
118	20	8/29/2023 6:35 AM
119	60 one way	8/29/2023 6:33 AM
120	25	8/29/2023 6:24 AM
121	45	8/29/2023 5:56 AM
122	90 miles	8/29/2023 5:22 AM
123	26	8/29/2023 5:14 AM
124	25	8/28/2023 7:55 PM
125	37 miles	8/28/2023 7:36 PM
126	8.3	8/28/2023 7:06 PM
127	90	8/28/2023 6:44 PM
128	26	8/28/2023 6:43 PM
129	50	8/28/2023 6:23 PM
130	33	8/28/2023 6:21 PM
131	34	8/28/2023 6:14 PM
132	36	8/28/2023 6:06 PM
133	10	8/28/2023 10:59 AM
134	5	8/28/2023 7:35 AM
135	5 miles	8/26/2023 8:36 AM
136	10	8/25/2023 8:49 AM
137	5 miles	8/24/2023 12:12 PM
138	20	8/23/2023 12:52 PM
139	245	8/23/2023 12:14 PM
140	31	8/23/2023 9:19 AM
141	24 miles	8/23/2023 8:56 AM
142	60	8/23/2023 4:37 AM
143	1	8/22/2023 1:32 PM

2022 Los Alamos County Employee Commute

144	35-45 one way	8/22/2023 11:11 AM
145	1	8/22/2023 8:32 AM
146	100	8/22/2023 7:54 AM
147	34	8/22/2023 7:47 AM
148	20	8/22/2023 7:45 AM
149	15.00	8/22/2023 7:08 AM
150	23	8/22/2023 7:02 AM
151	6	8/22/2023 5:06 AM
152	36	8/21/2023 5:28 PM
153	6	8/21/2023 3:37 PM
154	13 miles	8/21/2023 2:44 PM
155	35	8/21/2023 2:30 PM
156	18	8/21/2023 2:22 PM
157	5	8/21/2023 2:21 PM
158	26	8/21/2023 2:04 PM
159	36	8/21/2023 1:08 PM
160	5500	8/21/2023 11:11 AM
161	30 MILES	8/21/2023 10:58 AM
162	45	8/21/2023 10:04 AM
163	7 miles	8/21/2023 9:57 AM
164	60	8/21/2023 9:41 AM
165	30 miles	8/21/2023 9:13 AM
166	17	8/21/2023 9:12 AM
167	40 miles	8/21/2023 9:00 AM
168	10,800	8/21/2023 8:57 AM
169	10	8/21/2023 8:26 AM
170	8	8/21/2023 8:21 AM
171	50	8/21/2023 7:59 AM
172	45	8/21/2023 7:52 AM
173	2.6	8/21/2023 7:42 AM
174	35 miles	8/21/2023 7:40 AM
175	24	8/21/2023 7:14 AM
176	4200	8/21/2023 7:10 AM
177	2	8/21/2023 7:07 AM
178	35	8/21/2023 6:58 AM
179	30	8/21/2023 6:25 AM
180	52	8/21/2023 6:23 AM
181	15 miles	8/21/2023 5:53 AM

2022 Los Alamos County Employee Commute

182	50 miles	8/21/2023 5:51 AM
183	50 miles	8/21/2023 5:46 AM
184	20	8/21/2023 5:36 AM
185	1.7 miles	8/20/2023 6:11 PM
186	25 miles	8/20/2023 3:17 PM
187	2	8/20/2023 2:51 PM
188	2	8/20/2023 8:59 AM
189	3	8/19/2023 1:09 PM
190	22	8/19/2023 12:40 PM
191	100	8/19/2023 12:32 PM
192	5	8/19/2023 9:11 AM
193	10	8/19/2023 9:00 AM
194	2	8/19/2023 7:54 AM
195	40	8/19/2023 6:44 AM
196	6	8/19/2023 3:57 AM
197	80	8/18/2023 7:47 PM
198	45	8/18/2023 7:18 PM
199	5	8/18/2023 5:29 PM
200	103	8/18/2023 5:27 PM
201	25 miles	8/18/2023 5:03 PM
202	1	8/18/2023 4:00 PM
203	40	8/18/2023 4:00 PM
204	2.7	8/18/2023 3:37 PM
205	1	8/18/2023 3:21 PM
206	33 miles	8/18/2023 3:15 PM
207	45	8/18/2023 3:10 PM
208	24	8/18/2023 3:06 PM
209	45	8/18/2023 3:05 PM
210	10	8/18/2023 3:02 PM
211	2.5	8/18/2023 3:01 PM
212	17 miles	8/18/2023 2:52 PM
213	1	8/18/2023 2:52 PM
214	3	8/18/2023 2:51 PM
215	10	8/18/2023 2:51 PM
216	10 miles	8/18/2023 2:48 PM
217	5	8/18/2023 2:47 PM
218	65	8/18/2023 2:46 PM
219	3 miles	8/18/2023 2:46 PM

2022 Los Alamos County Employee Commute

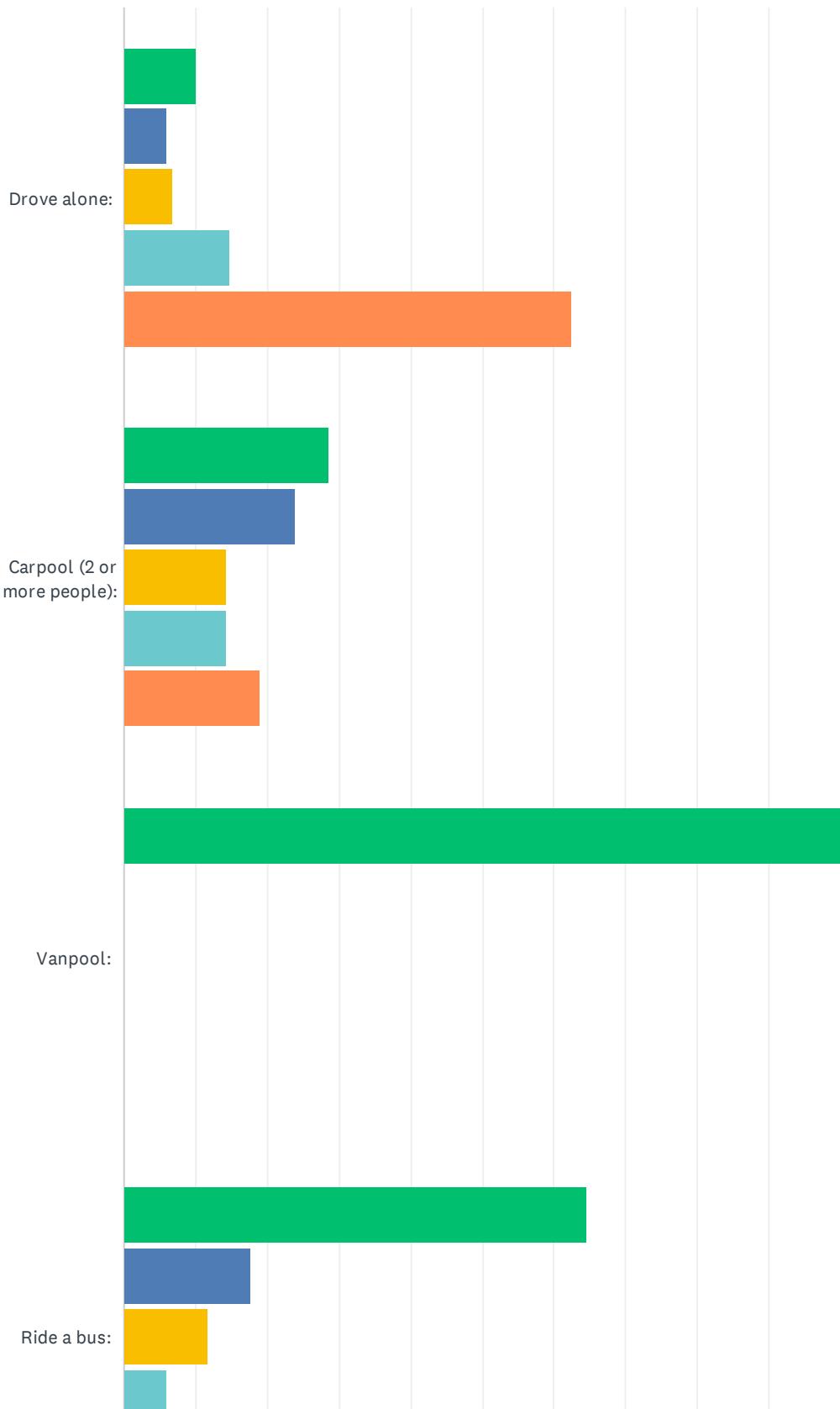
220	5	8/18/2023 2:45 PM
221	75	8/18/2023 2:44 PM
222	2	8/18/2023 2:43 PM
223	30	8/18/2023 2:42 PM
224	20 miles	8/18/2023 2:39 PM
225	3.0	8/18/2023 2:36 PM
226	18-20 miles	8/18/2023 2:34 PM
227	34	8/18/2023 2:33 PM
228	1.5	8/18/2023 2:32 PM
229	60MILES ROUND DRIP	8/18/2023 2:31 PM
230	26	8/18/2023 2:28 PM
231	7	8/18/2023 2:27 PM
232	1 mile	8/18/2023 2:26 PM
233	2	8/18/2023 2:24 PM
234	45	8/18/2023 2:24 PM
235	65 Miles	8/18/2023 2:24 PM
236	6	8/18/2023 2:23 PM
237	10	8/18/2023 2:23 PM
238	12	8/18/2023 2:22 PM
239	8	8/18/2023 2:22 PM
240	42	8/18/2023 2:22 PM
241	22	8/18/2023 2:22 PM
242	130	8/18/2023 2:22 PM
243	64 miles	8/18/2023 2:22 PM
244	25	8/18/2023 2:21 PM
245	12	8/18/2023 2:21 PM
246	35	8/18/2023 2:21 PM
247	.3 mile	8/18/2023 2:20 PM
248	100	8/18/2023 2:19 PM
249	12	8/18/2023 2:18 PM
250	72	8/18/2023 2:18 PM
251	28	8/18/2023 2:18 PM
252	38	8/18/2023 2:18 PM
253	15	8/18/2023 2:17 PM
254	20	8/18/2023 2:17 PM
255	2	8/18/2023 2:16 PM
256	60	8/18/2023 2:16 PM
257	138	8/18/2023 2:16 PM

2022 Los Alamos County Employee Commute

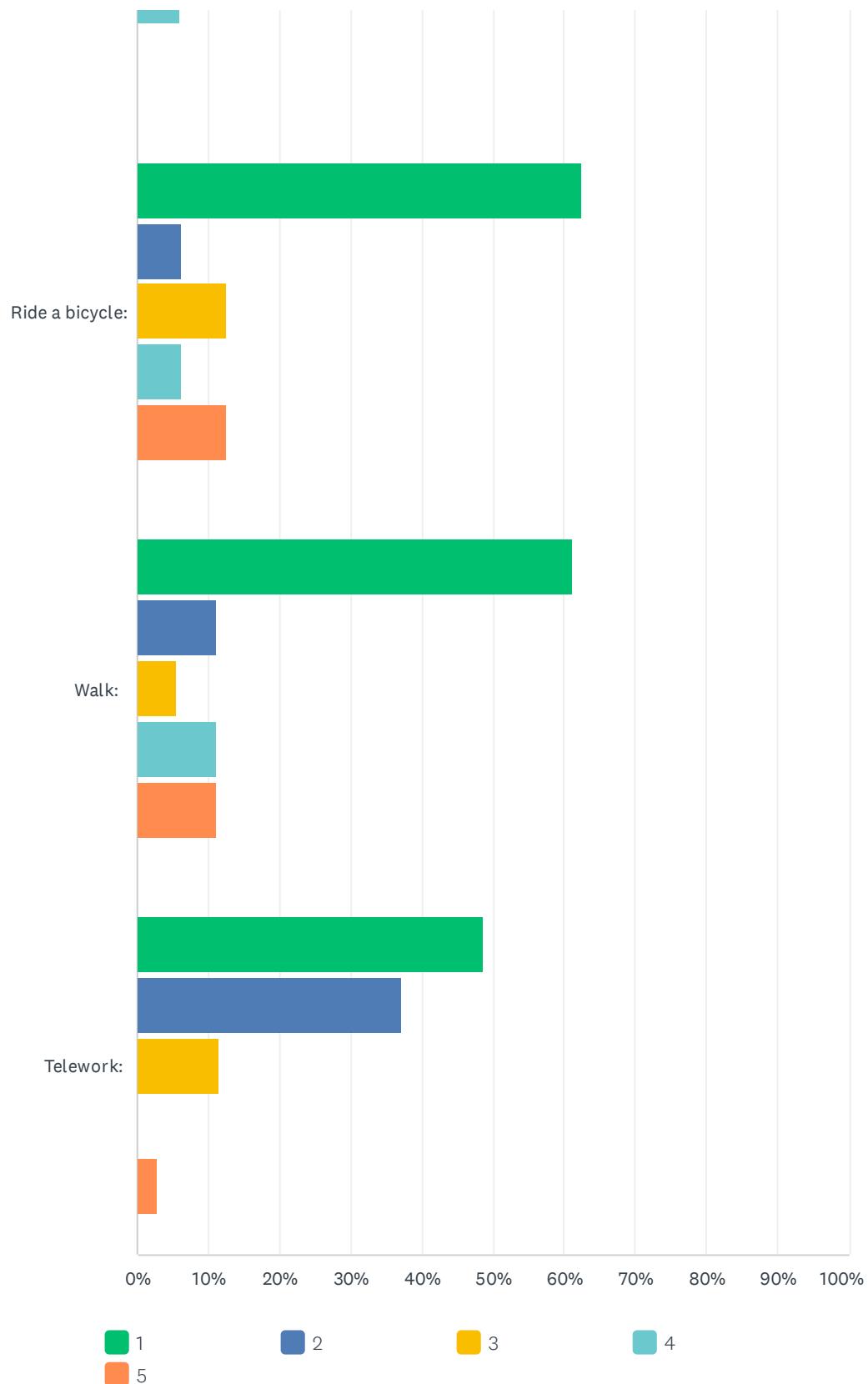
258	4	8/18/2023 2:15 PM
259	22	8/18/2023 12:47 PM

Q5 In a typical week during 2022, how many days did you:

Answered: 271 Skipped: 44



2022 Los Alamos County Employee Commute



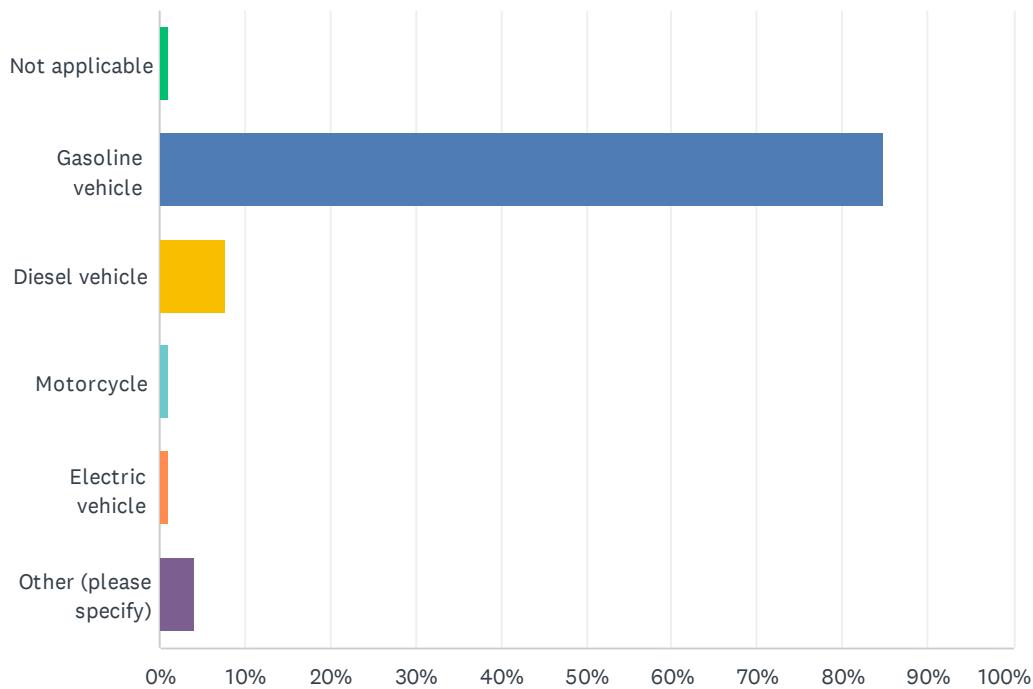
2022 Los Alamos County Employee Commute

	1	2	3	4	5	TOTAL
Drove alone:	9.96% 25	5.98% 15	6.77% 17	14.74% 37	62.55% 157	251
Carpool (2 or more people):	28.57% 12	23.81% 10	14.29% 6	14.29% 6	19.05% 8	42
Vanpool:	100.00% 7	0.00% 0	0.00% 0	0.00% 0	0.00% 0	7
Ride a bus:	64.71% 11	17.65% 3	11.76% 2	5.88% 1	0.00% 0	17
Ride a bicycle:	62.50% 10	6.25% 1	12.50% 2	6.25% 1	12.50% 2	16
Walk:	61.11% 11	11.11% 2	5.56% 1	11.11% 2	11.11% 2	18
Telework:	48.57% 17	37.14% 13	11.43% 4	0.00% 0	2.86% 1	35

#	OTHER (PLEASE SPECIFY)	DATE
1	I always drive alone	9/8/2023 1:13 PM
2	motorcycle	9/1/2023 4:30 PM
3	3 months FMLA in 2022, no commute at all July-October	9/1/2023 11:25 AM
4	Motorcycle as often as possible	9/1/2023 9:18 AM
5	50/50 telework and onsite	8/30/2023 10:32 AM
6	I came up everyday to work solo.	8/29/2023 6:56 AM
7	I walked 3x per week for a brief time during July and August 2022.	8/23/2023 12:14 PM
8	One week I telework 3 days, the other week 2 days.	8/21/2023 3:37 PM
9	i just drive by myself	8/21/2023 5:51 AM
10	Drove to firehouse and drove home alone after shift	8/18/2023 2:32 PM
11	Our department isn't allowed to telework, yet a 0 is not an option.	8/18/2023 2:23 PM
12	I drive alone all the time	8/18/2023 2:22 PM

Q6 If you drove to work, what kind of vehicle did you drive?

Answered: 272 Skipped: 43



ANSWER CHOICES		RESPONSES
Not applicable		1.10%
Gasoline vehicle		84.93%
Diesel vehicle		7.72%
Motorcycle		1.10%
Electric vehicle		1.10%
Other (please specify)		4.04%
TOTAL		272

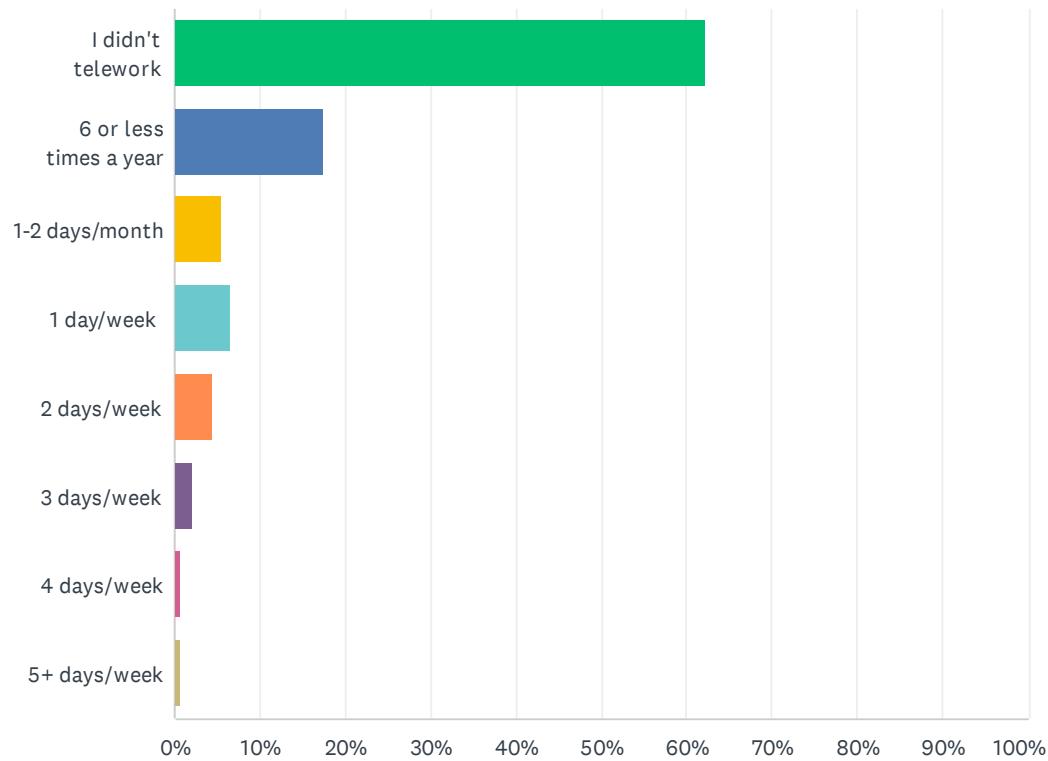
#	OTHER (PLEASE SPECIFY)	DATE
1	HYBRID	9/6/2023 12:59 PM
2	both Gasoline and Diesel	9/1/2023 10:52 AM
3	Hybrid	9/1/2023 9:30 AM
4	Hybrid	8/29/2023 10:24 AM
5	Plug-In Hybrid - Commute is completed in all electric mode.	8/28/2023 7:06 PM
6	Hybrid Prius	8/21/2023 1:08 PM
7	Gas Hybrid	8/21/2023 10:32 AM
8	BOTH GASOLINE AND DIESEL(ROTATE VEHICLES)	8/21/2023 9:13 AM

2022 Los Alamos County Employee Commute

9	hybrid vehicle	8/18/2023 2:48 PM
10	Hybrid vehicle	8/18/2023 2:43 PM
11	Hybrid	8/18/2023 2:24 PM

Q7 How many days did you typically telework in 2022?

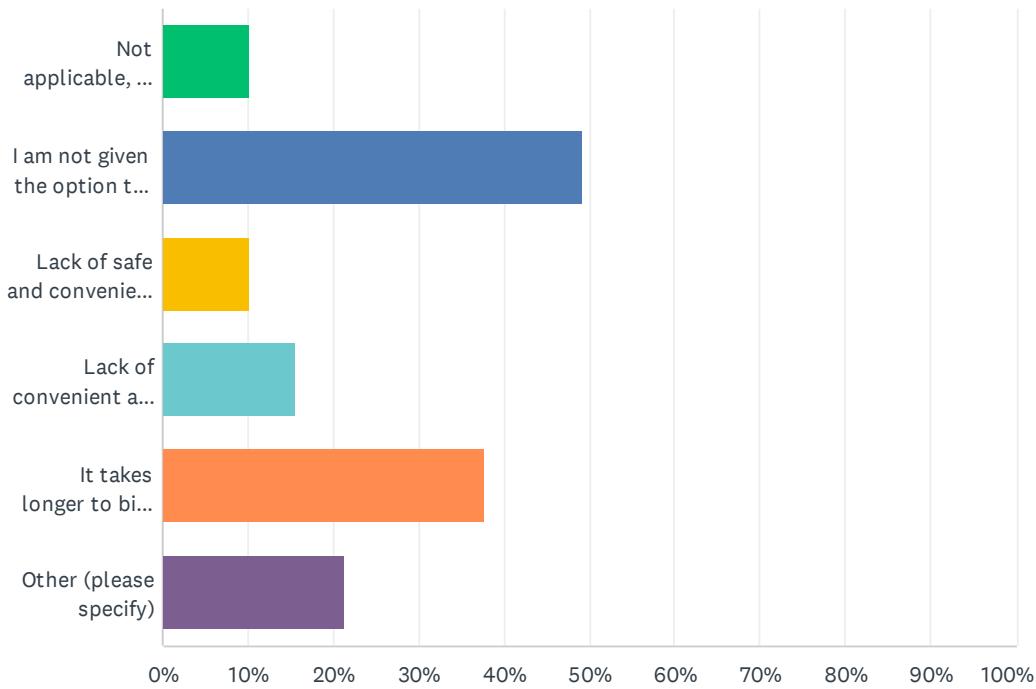
Answered: 270 Skipped: 45



ANSWER CHOICES	RESPONSES
I didn't telework	62.22% 168
6 or less times a year	17.41% 47
1-2 days/month	5.56% 15
1 day/week	6.67% 18
2 days/week	4.44% 12
3 days/week	2.22% 6
4 days/week	0.74% 2
5+ days/week	0.74% 2
TOTAL	270

Q8 What barriers do you identify in making "greener" choices around commuting? (select all that apply)

Answered: 262 Skipped: 53



ANSWER CHOICES		RESPONSES	
Not applicable, I already make "green" choices		10.31%	27
I am not given the option to telework		49.24%	129
Lack of safe and convenient biking and pedestrian infrastructure		10.31%	27
Lack of convenient and dependable access to public transportation		15.65%	41
It takes longer to bike, walk, or take public transit than it does to drive myself		37.79%	99
Other (please specify)		21.37%	56
Total Respondents: 262			

#	OTHER (PLEASE SPECIFY)	DATE
1	I have a 30 mile commute one way.	9/11/2023 7:10 AM
2	I drive a 1st responder vehicle and need to have access to it	9/11/2023 6:59 AM
3	Would prefer to telework 100% if possible to promote green initiative	9/8/2023 2:46 PM
4	Distance from work.	9/8/2023 12:57 PM
5	im a mean green machine	9/1/2023 4:30 PM
6	no public transportation available	9/1/2023 1:55 PM
7	Not enough schedule choices or faster direct routes from ABQ area	9/1/2023 11:26 AM

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8	typically adds 2 hrs to my workday, means missing kids pu/drop-off time school and sports	9/1/2023 11:25 AM
9	I do shift work for the Fire department and there is no option for us to have a shuttle or public transportation due to some station being on the labs and with overtime being unpredictable carpooling is difficult	9/1/2023 10:12 AM
10	Schedule is often unclear and timing for public transport is difficult	9/1/2023 9:30 AM
11	I do not have the option to telework on a regular basis.	9/1/2023 9:20 AM
12	long work hours	8/30/2023 11:54 AM
13	I'm fine using my internal combustion motor	8/30/2023 6:06 AM
14	Drive takes 20mins. Bus takes 1hour	8/29/2023 11:23 AM
15	More telework days	8/29/2023 8:31 AM
16	Having Children in LAPS in all levels of school. There is no transit option for morning drop off so all the commuters wait in lines to drop off kids. There are more options in the afternoon, but I think that LAPS should come up with an out of district drop zone for each school and provide transportation. This would eliminate a tremendous amount of unnecessary vehicle emissions, traffic, and make for a more efficient way to get everyone who commutes to work more timely.	8/29/2023 8:14 AM
17	bus schedule does not allow me to be at work on time	8/29/2023 7:14 AM
18	5 day a week work week.	8/29/2023 6:55 AM
19	I work detention so i must always be physically present when required,	8/28/2023 7:36 PM
20	Not fusible	8/28/2023 6:23 PM
21	More flexible Park N Ride hours	8/28/2023 6:21 PM
22	I live out of town	8/23/2023 12:52 PM
23	I don't own a bike, I live too close to take the bus, and I often have off-site meetings during the day. Weather sometimes complicates walking.	8/23/2023 12:14 PM
24	Commute with my children	8/23/2023 9:19 AM
25	I had multiple jobs at the time, so it would have been impractical or impossible to walk to my county job and then walk to my other job	8/22/2023 1:32 PM
26	running late (car is faster than biking)	8/22/2023 8:32 AM
27	Telework is being reduced	8/22/2023 7:47 AM
28	I work for transit. I cannot use public transportation.	8/22/2023 5:06 AM
29	I like the freedom of bringing my own vehicle. Also it is quieter than a transit bus with teenagers...	8/21/2023 3:37 PM
30	Live to far and the bus is not always an option if I have to work late	8/21/2023 2:30 PM
31	The option to telework more than one day at least two.	8/21/2023 2:04 PM
32	lack of affordable housing so i can live closer to work	8/21/2023 10:32 AM
33	EV's do not have the range I need and take too long to recharge. Chargers are miles from my work so I will still need to find a ride to the office	8/21/2023 10:04 AM
34	Live too far	8/21/2023 7:52 AM
35	kids school schedules do not always align with my work schedule	8/21/2023 7:26 AM
36	commute distance	8/21/2023 7:10 AM
37	inclement weather we are allowed to telework	8/21/2023 6:25 AM
38	Shiftwork requires odd hours negating any possible green sharing	8/20/2023 6:11 PM
39	Atomic city Transit has cut routes- we need the main hill route. I work at the library and we are	8/19/2023 9:00 AM

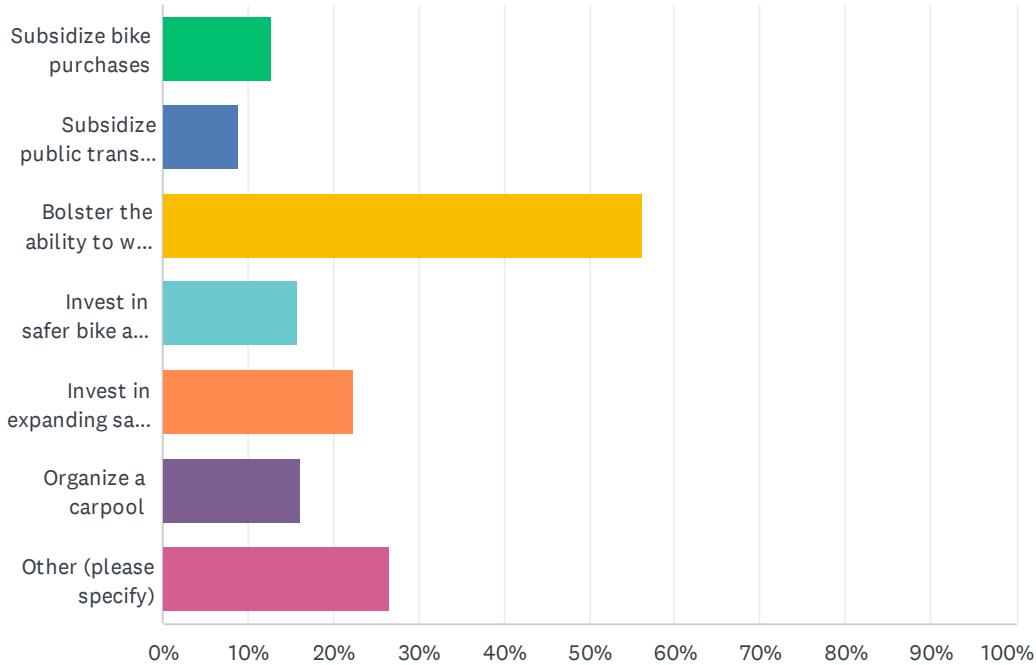
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open on weekends, so having the bus run on weekends would help

40	Housing near work, shorter routes to work	8/19/2023 6:44 AM
41	There are no greener options	8/18/2023 5:27 PM
42	Being green isn't fun	8/18/2023 4:00 PM
43	Unreliable bus service. It feels uncertain that I will be able to get home if I rely on bus services.	8/18/2023 3:15 PM
44	More charging stations	8/18/2023 3:10 PM
45	I use a County Vehicle.	8/18/2023 2:47 PM
46	Need a vehicle to attend meetings/trainings off site/no carpool available	8/18/2023 2:46 PM
47	Need to use own vehicle to drive to other sites.	8/18/2023 2:45 PM
48	Ability to telework more often and stay off the road. Or staggered shifts could be an option so there are not so many bottlenecks getting off the hill in the evenings.	8/18/2023 2:39 PM
49	Alternate schedule such as 4-10s; weather is an issue	8/18/2023 2:36 PM
50	I also have a child to drop off for school everyday. I enrolled them in school in LA before telework started because of my work.	8/18/2023 2:34 PM
51	No weekend or evening bus service	8/18/2023 2:27 PM
52	Have one closing shift a week - don't feel safe biking/walking in dark (wild animals, minimal street lights).	8/18/2023 2:26 PM
53	The canceling of 2M means public transportation is no longer an option	8/18/2023 2:21 PM
54	Ability not having to rely upon someone else's/transit's schedule.	8/18/2023 2:17 PM
55	I don't own an electric car	8/18/2023 2:16 PM
56	Can't afford to live in Los Alamos	8/18/2023 2:16 PM

Q9 How could the County incentivize "greener" employee commute choices? (select all that apply)

Answered: 236 Skipped: 79



ANSWER CHOICES		RESPONSES	
Subsidize bike purchases		12.71%	30
Subsidize public transit passes		8.90%	21
Bolster the ability to work remotely		56.36%	133
Invest in safer bike and pedestrian infrastructure		15.68%	37
Invest in expanding safe and convenient public transportation		22.46%	53
Organize a carpool		16.10%	38
Other (please specify)		26.69%	63
Total Respondents: 236			

#	OTHER (PLEASE SPECIFY)	DATE
1	these are aweful suggestions.	9/8/2023 5:06 PM
2	Gasoline stipend	9/8/2023 2:48 PM
3	Nothing. I work at the Hydros.	9/8/2023 2:06 PM
4	having bus drivers so that routes don't get cancelled. also, bus times are often late	9/8/2023 1:37 PM
5	my job will never be able to telework	9/8/2023 1:37 PM
6	teach kids to fix old cars	9/5/2023 1:42 PM

2022 Los Alamos County Employee Commute

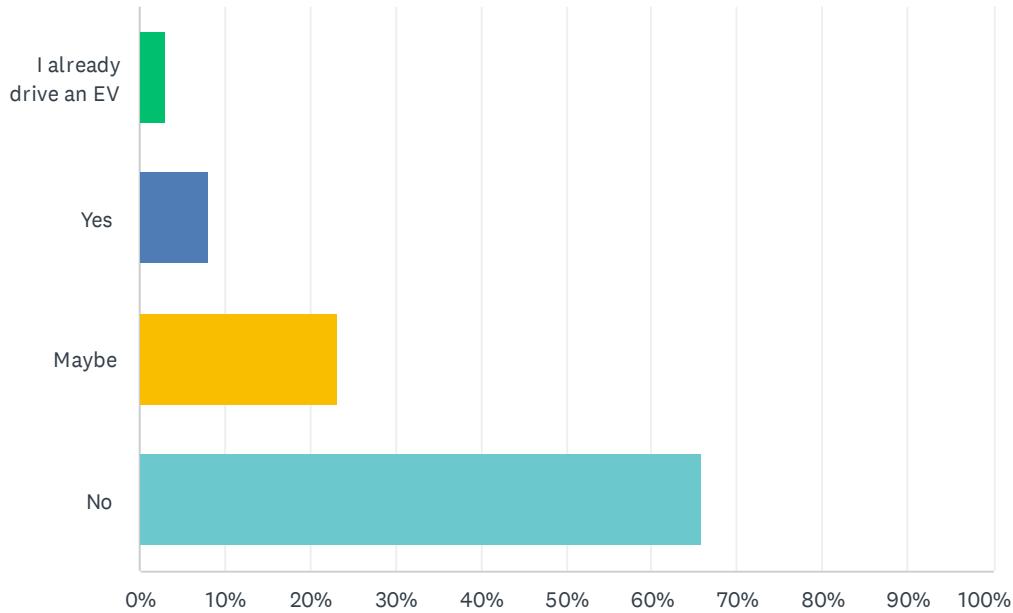
7	i like trees	9/1/2023 4:30 PM
8	Buy me an electric car or pay me more so i can afford one(solar for house/charging station)	9/1/2023 10:17 AM
9	Provide shuttle service for those who live in another city	9/1/2023 10:12 AM
10	Incentivize Electric Bikes, electric scooters, and electric unicycles	9/1/2023 10:10 AM
11	pay incentives	9/1/2023 10:08 AM
12	Better pay so I could afford a better vehicle on fuel	9/1/2023 10:08 AM
13	Alternate work schedules remote and in person	9/1/2023 9:58 AM
14	4/10	8/31/2023 7:44 AM
15	not sure	8/31/2023 7:10 AM
16	offer/start a electric bike/scooter share	8/30/2023 10:28 AM
17	subsidize turbo purchases	8/30/2023 6:06 AM
18	Live too far away to make use of public transit or carpool	8/29/2023 2:44 PM
19	n/a	8/29/2023 1:09 PM
20	?	8/29/2023 11:40 AM
21	more telework	8/29/2023 11:23 AM
22	Flexible work schedule	8/29/2023 10:24 AM
23	offer telework, flexible work schedules	8/29/2023 8:18 AM
24	County of Los Alamos looking into 10 hour work days for all non-essential employees to save travel time, building electricity, heating, cooling and other facilities.	8/29/2023 8:15 AM
25	Either partner with schools and/or NCRTD to allow meet the needs of the mass numbers of commuters and provide more centralized drop zones. For instance if NM Park and Ride and/or NCRTD offered transit for both employee and school student and partnered with Santa Clara for parking, you would eliminate probably 60% of the hill commuters from the northern region. Or at least provide better opportunity for getting kids to school and eliminating the need for so many vehicles. It's all about planning at the rush hours, in the correct locations and making it convenient and safe for parents and students that commute.	8/29/2023 8:14 AM
26	go to 4 days a week, would save me 60 miles of driving, save me about 4 gallons of gas	8/29/2023 6:55 AM
27	not sure	8/29/2023 6:35 AM
28	none	8/29/2023 6:33 AM
29	promote a 4 day work week	8/29/2023 5:22 AM
30	EV Charging Infrastructure not sufficient throughout the county	8/29/2023 5:14 AM
31	Can't	8/28/2023 6:23 PM
32	Not interested!	8/28/2023 7:35 AM
33	In all honesty, I should be walking every day. Off-site meetings are usually my challenge. 9/80 work schedule would also help!	8/23/2023 12:14 PM
34	invest in local housing options so that I can afford to live on the hill	8/23/2023 8:56 AM
35	work 4 10s	8/22/2023 7:47 AM
36	or a 4/10 schedule and remote schedule (like LANL)	8/21/2023 3:37 PM
37	The transit center is awkward and adds unnecessary time to the commute.	8/21/2023 2:44 PM
38	It would be helpful to have a school bus stop on this side of town (on Central or Trinity) to alleviate traffic taking students to Los Alamos Schools in the morning and if possible in White Rock for those students. There seems to be more transportation options for afterschool. The option to telework more than a day would also be helpful.	8/21/2023 2:04 PM

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39	na	8/21/2023 11:11 AM
40	Have more affordable housing in area so people who work here can live here. Or increase pay so people who work for the county can afford to live up here.	8/21/2023 10:58 AM
41	give incentivize for car pooling with co-workers	8/21/2023 10:32 AM
42	Option for 4 day work weeks	8/21/2023 8:57 AM
43	Unknown for those who do not live in Los Alamos	8/21/2023 8:26 AM
44	Can't, Nothing is cost effective enough to implement.	8/21/2023 8:21 AM
45	provide an electric car for my commute	8/21/2023 7:59 AM
46	Able to work 4 10's	8/21/2023 6:25 AM
47	i have no option, drive from far away	8/21/2023 5:51 AM
48	N/A	8/21/2023 5:46 AM
49	Don't know	8/19/2023 12:32 PM
50	consult with regular bus users on times- my work ends at 15 minutes after the hour, but the bus leaves at 10 after	8/19/2023 9:00 AM
51	Don't need to waste time or budget to do so	8/18/2023 5:27 PM
52	due to the type of work that I do I am unable to perform the required task from remote	8/18/2023 5:03 PM
53	more routes, more times for buses (both rural NM and here in Los Alamos)	8/18/2023 3:21 PM
54	More chargers that stay maintained	8/18/2023 3:10 PM
55	bike and scooter share/rental services	8/18/2023 2:52 PM
56	Provide more electric vehicles and charging stations.	8/18/2023 2:47 PM
57	Incentivize carpool/vanpool participation	8/18/2023 2:46 PM
58	Alternate work schedules	8/18/2023 2:36 PM
59	More bike lock-up locations! Re: subsidies, e-bikes would be helpful as some of these hills are also hard for me.	8/18/2023 2:26 PM
60	My location is off the hill. It is not safe for me to ride my bike. To catch the Park & Ride, I have to drive the same distance it is to work, in the opposite direction to the bus pickup location. The RTD (blue bus) does stop near my home, but the hours do not coincide with my work hours. .	8/18/2023 2:23 PM
61	There are days when I come to work that I could easily telework as I have nothing that needs to be done on site	8/18/2023 2:21 PM
62	Allow and encourage - in ALL departments - alternative work schedules to commute less days/wk	8/18/2023 2:18 PM
63	More transit options - times not spread so far apart especially between LA and WR which could take an hour on ACT	8/18/2023 2:17 PM

Q10 Are you considering switching to an electric vehicle (EV) for commuting in the near future (next 5 years)?

Answered: 272 Skipped: 43



ANSWER CHOICES	RESPONSES	
I already drive an EV	2.94%	8
Yes	8.09%	22
Maybe	23.16%	63
No	65.81%	179
TOTAL		272

Q11 Do you have any other comments or questions regarding your commuting behavior and related County services?

Answered: 87 Skipped: 228

#	RESPONSES	DATE
1	EVs rely too heavily on slave labor and foreign metals.	9/8/2023 5:06 PM
2	Thanks for supporting bike commuting with the nice covered place to leave bikes during the day at the muni mbldg it makes life easier.	9/8/2023 3:59 PM
3	Allow the option to telework 100%.	9/8/2023 2:46 PM
4	I work at the hydro plants, so kind of a different statistic	9/8/2023 2:06 PM
5	no, generally satisfied, but could be improved.	9/8/2023 1:37 PM
6	maybe get state contract price for fuel	9/8/2023 1:37 PM
7	none	9/8/2023 1:13 PM
8	Riding the park and ride adds at least 20 minutes each way to my commute from the Espanola townsite. As much as I appreciate not driving, the extra time directly impacts my decision to drive alone. The park and ride offers services in the morning and at the end of the day so if I need to be available to leave during the workday, I have to plan on driving instead of the bus. Midday transportation (even at a cost like the park and ride) from Los Alamos to Espanola and Santa Fe would make bus riding more accessible with differing schedules (especially the need forgetting off the hill midday).	9/8/2023 12:59 PM
9	I currently work remotely 3 days a week and am grateful and hope this service continues for employees at LAC.	9/6/2023 10:16 PM
10	The Los Alamos busses are the greatest!	9/6/2023 2:45 PM
11	No	9/6/2023 1:32 PM
12	EV's are not at all green. Keeping old cars running is.	9/5/2023 1:42 PM
13	electric vehicles are in no way "Greener" than modern gasoline vehicles. In fact it has been proven in some cases that the nickel batteries from hybrids and some fully electric vehicles do far more damage to the environment than modern gasoline vehicles. Instead of pushing the politics of "electric vehicles are cleaner", more open minded and honest conversations would actually help the environment and not just a political agenda.	9/1/2023 4:30 PM
14	Pay your employees better .	9/1/2023 1:42 PM
15	commuting tends to be more stressful due to heavy traffic going up the hill	9/1/2023 1:14 PM
16	A more convenient schedule to commute from ABQ/Rio Rancho area. More frequent routes via Railrunner that coordinate with public transportation to Los Alamos. Goal = reasonable amount of time in route, vs current time in route which is excessively long. Also, consider 4 day work weeks.	9/1/2023 11:26 AM
17	I have old/high mileage cars, reliability & wear/tear very hard & a reality. Currently I ride NMDOT 4-5 days/wk, walk, bike, and reserve fleet vehicle when needed for work purposes only as ACT doesn't run Rte 3 anymore and construction road works delays don't align. Riding ACT into town (work outside Muni Bldg) Lunch breaks become 1.5-1.75 hrs when reliant upon ACT.	9/1/2023 11:25 AM
18	Pay employees better. All of these salary studies with surrounding counties are not effectice. The only salary comparrison the county needs is the lab. Period 15+year employee giving solid ideas.	9/1/2023 10:17 AM
19	More Departments need to offer teleworking	9/1/2023 10:15 AM

2022 Los Alamos County Employee Commute

20	Shift work needs to be included in ideas to bolster ways to help employees make "green" options when commuting. Having a bus run on weekends, or later than 7 pm between Los Alamos and White Rock would help this.	9/1/2023 10:09 AM
21	Price of fuel is high, not enough pay.	9/1/2023 10:08 AM
22	While I do think alternative work schedules will assist with traffic issues in Los Alamos County. I am more concerned with traffic congestion and emergency response/public safety related to continued hiring and growth in Los Alamos County. I want to see more city planning related to alternative routes and infrastructure to relieve traffic congestion. Thank You	9/1/2023 9:58 AM
23	Increased LANL hiring is causing this issue that the County has to solve. LANL needs to be a bigger part of this solution	9/1/2023 9:43 AM
24	ACT schedule alignment with Park and Ride (ensuring I can get to certain buses if I don't have time to walk to the stop) would be ideal	9/1/2023 9:30 AM
25	Either offer teleworking to all employees or if that is not an option for most, then offer a 4-10 work week rather than 5 eight hour days. It is not fair that teleworking is offered to some employees while others do not have that option based on their work duties. So make it fair with a 4-ten hour week.	9/1/2023 9:23 AM
26	EV infrastructure is not available in Espanola.	9/1/2023 9:20 AM
27	Traffic circle is a huge problem. We need to teach commuters how to negotiate traffic circles	9/1/2023 9:18 AM
28	would like to ask for 4/10 work schedule	8/31/2023 7:44 AM
29	Rock slides are scary.	8/30/2023 10:32 AM
30	Traffic on my commute route is high and chaotic (highschool area). I do see morning bikers commuting, but think they must be quite brave to tackle it! I am close to easy and free county bussing -- I think I need to work on a shift in attitude and expectations around commuting.	8/29/2023 4:00 PM
31	My job does not allow me to work remotely, the distance traveled is too far for any feasible option, beside POV.	8/29/2023 2:44 PM
32	na	8/29/2023 11:40 AM
33	I think we need to get the employees to recycle in the office first. Before we try the big stuff	8/29/2023 11:23 AM
34	No	8/29/2023 10:28 AM
35	10 Hour shifts would help alleviate in coming traffic into and out of Los Alamos in the morning and afternoons. The traffic for anyone living off the hill has gotten so bad that it takes an extra half hour to leave town, this alternative is a great way for the county to save money in numerous ways. Thank you	8/29/2023 8:15 AM
36	Thank you for asking for feedback. I see a lot of frustration, agitation and unsafe driving habits as a commuter trying to get to the same or similar destinations each day. In fact I see the same cars that have families in the LAPS system rushing up the hill, being stuck in the same lines, and then having to idle our vehicles in the cold and heat in order to make the drop off times. If we solved this with help from regional partners, and the LAPS, we could make everyone safer, including the neighborhoods that have to host the majority of commuter traffic every morning. We could significantly lower everyday vehicle emissions by starting with a central hub to drop off kids for bus transportation to each elementary, LAMs, and LAHS. Thank you!	8/29/2023 8:14 AM
37	The bus system is great, but if the bus is late, I have to use my personal time if I am late. To ensure I'd be on time every day, I would need to leave for work an hour earlier. Then I would have to wait for another 45 minutes after I get off from work to begin the journey home. I'd prefer to drive than be late for work and extend my daily commute time by that much.	8/29/2023 7:14 AM
38	Not all departments have the ability to telework from home can't fix roads or mow grass, repair electrical and plumbing repairs from home. Field workers do not have the option with rain, snow any weather they're still required to be at work.	8/29/2023 7:14 AM
39	none	8/29/2023 6:56 AM
40	County should give option to telework, and option to work 4/10	8/29/2023 6:46 AM

2022 Los Alamos County Employee Commute

41	no	8/29/2023 6:35 AM
42	no	8/29/2023 6:33 AM
43	Need charging solutions at most county buildings especially the fire stations! There are a majority of firefighters that live in the Albuquerque area that would buy and commute in an EV if there was charging available at the fire house. Also there should be solar panels on the roofs of all the stations or solar carports!	8/29/2023 5:14 AM
44	Very poor drivers in the community. I don't feel safe walking or cycling on main road areas.	8/28/2023 7:35 AM
45	Two lanes in each direction on Trinity and encourage bicyclists and pedestrians to travel along Canyon/Central. Expand 502 to two lanes in each direction from the round-a-bout to Main Hill	8/25/2023 8:49 AM
46	The expense (even in the long term) of making the changes required to pivot to greener alternatives makes those changes really impossible on my income level.	8/23/2023 8:56 AM
47	I am a shift firefighter with a rotating schedule and mandatory overtime. It is not reasonable for me to carpool.	8/22/2023 7:54 AM
48	no	8/22/2023 7:08 AM
49	Public Transportation is great through out NM continued support is needed. Drivers need to be recognized and given a chance to attend workshops, trainings & conferences.	8/22/2023 7:02 AM
50	I live in a mobile home park, I own my house but rent the lot, and my house is very old. I cannot afford to upgrade the electric- and do not believe the owners of the park would allow for it.	8/21/2023 3:37 PM
51	No way, with shift work, to commute--not with family members or with colleagues. Adore mass transit, but don't think a subway would work here. ;) The bus system here is, by all accounts, great. However, it's not so great for shift work or evening work or several locations on some days.	8/21/2023 2:44 PM
52	Could improve the signage for the new roundabout. The signage has been improved by indicating where to merge, but it could be better. The round about heading up the middle school is very clear indicating that one lane is just to turn right and the other lane is to either go straight or around to the left.	8/21/2023 2:04 PM
53	I wish there were affordable housing options for my family in Los Alamos. An apartment is not what will work for a growing family and two dogs.	8/21/2023 1:08 PM
54	na	8/21/2023 11:11 AM
55	we should push people to get hybrid vehicles over electric until our electrical infrastructure issues are solved	8/21/2023 10:32 AM
56	None	8/21/2023 9:00 AM
57	The cost and then utilization of making more commuting options do NOT justify the effort.	8/21/2023 8:21 AM
58	I don't think there are many people who live where I do in order to carpool. Working from home would be the best option	8/21/2023 7:52 AM
59	no	8/21/2023 7:14 AM
60	Continue to offer the ability to work remotely as much as possible. It not only helps the environment, but increases employee productivity and overall well being.	8/21/2023 7:10 AM
61	Would like to have option of working 4 10's to save on gas.	8/21/2023 6:25 AM
62	no im good, tanks for ask.	8/21/2023 5:51 AM
63	no	8/21/2023 5:46 AM
64	re-Build the grid before promoting green energy. we need a stockpile of transformers and transmission cable and associated equipment, in case of attack by China, we are vulnerable, redundant transmission , multiple resources like Nuke and Coal for baseload, gas for regulation!!!! 60 MW Nuke 40 MW coal and another CGTG.... and wind and solar for corrupt politicians..	8/20/2023 6:11 PM
65	Flexible work hours in order to avoid congestion periods	8/19/2023 1:09 PM

2022 Los Alamos County Employee Commute

66	The county should subsidize electric vehicle purchases for county employees	8/19/2023 12:40 PM
67	n/a	8/19/2023 12:32 PM
68	no	8/19/2023 7:54 AM
69	Subsidize commuting cost due to county pay not allowing many individuals to afford housing of a similar build/ square footage of other communities in NM	8/18/2023 5:27 PM
70	no	8/18/2023 5:03 PM
71	Each individual driving to work means more vehicles on the road and longer waits at traffic jams. What would make public transit more appealing to everyone?	8/18/2023 3:21 PM
72	The county should consider doing a poll of commute safety conditions before 'green' options. My commute from Santa Fe is the primary reason I am looking for new employment options as it is dangerous, expensive, and there are no reasonable alternatives to driving. I would love environmentally conscious options, but my main concern with my commute is that every time I drive down the hill from work I could be in an accident that could do thousands of dollars of damage to my vehicle or bodily harm to myself and other drivers. This concern is so present in my daily life that I was a little insulted that the county would ask about environmentally conscious choices over the safety of its employees.	8/18/2023 3:15 PM
73	I try to car pool and bring as many up when possible but telework would be a nice option to have.	8/18/2023 3:10 PM
74	help to align spouse schedules so they can commute together	8/18/2023 3:06 PM
75	Roundabout at Central and Trinity BAD Choice.	8/18/2023 3:05 PM
76	Is there some way for the County to initiate carpool opportunities between employees driving from the same areas who may not yet know each other? Like a carpool group or list?	8/18/2023 2:52 PM
77	Having good flexibility in my work schedule in order to take advantage of our excellent bus service. I used to use it all the time, but don't now because schedules do not seem as convenient traveling to/from White Rock.	8/18/2023 2:46 PM
78	Allowing a 4day-10hour shift schedule or every other week a long weekend to keep us off the road everyday. Current roundabout delays has many commuters stuck for 20 minutes plus the standard commute. What was a half hr commute has turned into a 45+minutes to get home.	8/18/2023 2:39 PM
79	Try and reduce traffic in the mornings and evenings by creating more staggered work schedules, then people don't end up waiting in traffic with their cars on for an extra 20 to 30 minutes. It might help to work in collaboration with LANL on this as well. People could also work from home part of the day if they are allowed to leave or come in at different times of the day (ie. come in later, leave earlier), that would help reduce traffic as well. Actually having more flexible work schedules would help, then you could implement something like LANL has with their 9/80 hours, where they get one day off every two weeks. I think they usually do Fridays, but I know people have been able to take Wednesdays too. This especially helps people with elementary school kids up here since Wednesday is half day.	8/18/2023 2:34 PM
80	For bike lock-up options: also consider ones that would protect bikes from weather. Maybe lockers or awnings? Re: telework, while I like the option in general, a big portion of my work requires my presence so this isn't feasible for all employees.	8/18/2023 2:26 PM
81	It would be a good choice to have the county start a 9 80 schedule.	8/18/2023 2:24 PM
82	I would love to purchase an electric vehicle. Timing is not ideal as I have a fairly new gasoline vehicle which gets approx. 45 miles to the gallon.	8/18/2023 2:23 PM
83	I'd considered switching to an electric vehicle (EV) but charging stations available to County workers are pretty slim if you're not working at/ near the Muni building.	8/18/2023 2:22 PM
84	We need a telework policy and something done about the traffic leaving at 5pm.	8/18/2023 2:22 PM
85	telework is helpful and I'd love to see it made permanent or even expanded as an option	8/18/2023 2:21 PM
86	Alternative schedules for lesser days/wk, but also alternative hours aside from 8 AM - 5 PM so that everyone is not trying to get off the hill at the same time.	8/18/2023 2:18 PM
87	Independent and safer bicycle lanes are necessary for traveling within the community.	8/18/2023 12:47 PM



APPENDIX I.

GHG Reduction Strategies Quantification Methodology & Findings



GHG Reduction Strategies Quantification Methodology & Findings

October 2024

Executive Summary

This document summarizes findings from a quantitative assessment of proposed draft Los Alamos Climate Action Plan actions. The quantitative assessment provides high-level estimates of the **costs** and **emission reductions** associated with select proposed actions to provide information regarding a potential pathway for meeting the County's emission reduction goals. Note that this analysis was conducted prior to finalization of the Climate Action Plan, and thus reflects the suite of proposed actions at that point in the planning process, and not the final list of CAP actions. Key findings of the analyses include:

- Modeling suggests that implementation of the select proposed CAP measures could reduce emissions by **29% by 2030, 87% by 2040, and 88% by 2050**. The following proposed CAP strategies and actions were the highest contributors of GHG emission reductions through 2050:
 - Electric equipment replacement at burnout
 - Adopt green building standards
 - Promote EV adoption
 - Promote urban forest stewardship and tree preservation
- Modeling suggests that implementation of select key climate actions, including adopting green building standards and incentivizing electrification retrofits, will result in an average **net community cost of \$3 per Los Alamos County resident per year** over the 25-year life of the plan. Community costs are largely driven by current and projected electricity and natural gas energy prices. These costs are largely offset by savings from available rebates and incentives and anticipated reductions in energy consumption/costs.

This document is organized as follows:

- The [Overview](#) introduces the approach and key assumptions that drove the analysis.
- The [Findings Summary](#) provides the emissions reductions, County staff time, Net Present Value , and cost-effectiveness for proposed CAP actions.
- The remaining sections detail emissions reduction and cost results by sector:
 - [Buildings & Energy](#)
 - [Materials & Consumption](#)
 - [Natural Systems & Water Resources](#)
 - [Transportation & Land Use](#)
 - [Community Resilience, Adaptation & Wellbeing](#)
 - [Cross-Cutting](#)
- A detailed [References](#) list documents the sources used to conduct the analyses.
- For more details, contact the County; the analysis workbook in Excel is available upon request.

Overview

This document summarizes findings from a quantitative assessment of proposed actions for inclusion in the draft Los Alamos CAP. The quantitative assessment provides high-level estimates of the **costs** and **emission reductions** associated with select proposed actions (detailed below) to provide information regarding a potential pathway for meeting the County's emission reduction goals. Note that this analysis was conducted prior to finalization of the Climate Action Plan, and thus reflects the suite of proposed actions at that point in the planning process, and not the final list of CAP actions.

Some climate actions are directly **quantifiable**, while others are not. Many climate actions may not be readily quantifiable, may result in inconsequential GHG reductions, or may have indirect benefits that do not result in emissions reductions as calculated in the County's inventory. These actions, often defined as "**supportive**," may be critical for implementation success even if they are not quantified. For example, actions to enhance energy battery storage are crucial for large-scale implementation of renewable energy and electrification, but do not themselves reduce GHG emissions. Another example is education and incentive programs, which can encourage reductions but may be difficult to quantify depending on the reach, efficacy, and permanence of the implemented changes. In contrast, an ordinance to require all-electric new construction is a quantifiable action that carries a very high and defensible likelihood of significant and measurable emissions reductions.

Some proposed climate actions are focused on improving community resiliency to climate change impacts rather than reducing GHG emissions. While the resilience benefits of these "**climate adaptation**" actions were not quantified, taking action to build climate resiliency and preparedness are nonetheless critical for addressing climate change in the Los Alamos community and should be considered as an important part of Los Alamos's climate action strategy.

The project team took an action quantification approach in line with that taken by other local climate action plans across the country. Action impact was explicitly modelled based on **available information** and **case studies**, including data on historic and projected energy usage, population and development trends, and technology and policy impact. The consultant drew from literature and expert opinion—including studies done by the U.S. Department of Energy and California Air Resources Board—as well as from available County data and staff input.

Actions were analyzed based on predetermined, draft implementation **timeframes**, which were categorized as follows. Note that these draft timeframes do not reflect the final implementation timeframes reflected in the final Climate Action Plan:

- Ongoing; a continuation of County or regional initiatives without significant changes.
- Near-term (1-5 years); 2025 to end of 2030.
- Mid-term (6-10 years); 2030 to end of 2035.
- Long-term (11-25 years); 2036 to end of 2050.

Cost Estimation

Action implementation costs were estimated for both costs to the County government and community:

- **Community costs** estimate how much it will cost an average resident, business, or developer to implement the measure as compared to a business-as-usual scenario.
- **County government costs** estimate costs related to County staff time, capital expenditures, consultant services, and procurement.

Cost estimations were based on consultant experience, available literature, consultation with peer cities, and County staff input, and included the following cost elements:

- **Initial start-up costs**, in the form of consultant and capital expenses.
- **Ongoing costs** through 2050 over a 25-year timeframe, including continued labor expenses, maintenance, and monitoring/evaluation of resource needs.

County staff reviewed the cost estimations—especially the County cost element (e.g., estimated FTE requirements). To the extent possible, the consultant provided citations for consulted literature and case studies, although information on climate action costs is very limited at this time.

Where known, the analysis includes consideration of partnerships. Also, available incentives, grants, and rebates were included in the analysis. If sourced by the County, costs to fund these incentives are noted as a *cost to the County* (e.g., County subsidizes cost of publicly available EV chargers). If sourced externally (e.g., from federal or state government), those costs are only noted as a local *community cost savings*, not as a cost incurred to the Los Alamos County government or community (though these rebates could be indirectly supported by the Los Alamos community through state or federal tax contributions). Funding options for each action in the final Climate Action Plan are presented in the implementation matrix of the Climate Action Plan.

Generally, the consultant aimed to estimate the costs to fully implement the policies and achieve their intended impact. For example, in estimating the costs to develop and implement an EV infrastructure plan, the costs represent both the costs to develop the plan as well as to implement the plan.

Implementation costs were estimated using assumptions used for the GHG emission reduction model as well as best estimates based on County staff input and other similar climate plans.

Emission Reduction Estimation

The consultant explicitly modelled emissions reductions associated with proposed CAP actions.

Modeling built from the emissions forecast and considered interacting actions to avoid double counting, such as impacts of EV vehicle use on community electricity consumption. All assumptions are provided for transparency and County/stakeholder review and outcomes are visualized in both table and graphical format.

Findings Summary

Results from the cost and impact analysis are summarized in the table below. The “Summary At-a-Glance” table on the subsequent page includes the following information associated with each proposed CAP action:

- **Net Present Value (NPV) cost to the County and community:** The anticipated net cost of the action for the County government and Los Alamos community, considering current and future costs and cost savings benefits (through 2050). Negative NPV values represent cost savings.
- **GHG savings:** Estimated cumulative GHG emission reduction benefits resulting from action implementation (through 2050).
- **Cost effectiveness:** Estimated cost effectiveness of the action (cost per unit GHG emission reduction achieved).

The Summary At-a-Glance table is followed by the following additional summary sections:

- **GHG Reductions** highlights the combined impact of all strategies and actions in reaching Los Alamos County’s overall and per capita emissions reduction targets. It also summarizes which strategies and actions contribute most to emissions reduction.
- **Cost** details the estimated County staff time, in FTE, required to implement key actions of the Los Alamos CAP. It also includes the NPV cost by strategy and by action, organized by sector.
- **Cost effectiveness** includes the overall cost-effectiveness of CAP implementation for the County and community, highlights the most cost-effective actions, and summarizes cost effectiveness for every action.

Summary At-a-Glance

Acronym/Abbreviation Key		
GHG	Greenhouse gas	Methane, carbon dioxide, and nitrous oxides that contribute to climate change
MTCO ₂ e	Metric tons carbon dioxide equivalent	Common unit for quantifying GHG emissions
	Denotes actions with notable direct or indirect GHG savings that were not quantified due to measurement constraints.	
(blank)	Blank cells denote actions that do not have a direct or quantifiable GHG emissions reduction.	

ID	Proposed Action	GHG savings (MTCO ₂ e)	
		Cumulative Savings - to 2050	2050
BE1.1	Establish an energy benchmarking program for commercial buildings		
BE1.2	Establish an energy benchmarking program for County-owned buildings		
BE1.3	Encourage community energy efficiency and electrification retrofits	110,581	
BE1.4	Adopt green building standards	145,656	
BE1.5	Develop a contractor training program	18,938	
BE1.6	Require electric equipment replacement at burnout	407,200	
BE2.1	Promote local renewable energy	5,030	
BE2.2	Expand electric energy resiliency		
CC1.1	Develop a sustainable business certification	275	
CC2.1	Facilitate equitable public participation in planning		
CC2.2	Monitor and share climate action progress		
CC2.3	Collaborate with local Pueblos		
CC2.4	Expand community partnerships		
CR1.1	Conduct a vulnerability assessment		
CR1.2	Invest in public climate education campaigns		
CR1.3	Support the local food system		
CR2.1	Encourage adaptation upgrades		
MC1.1	Promote circular economy practices		
MC1.2	Expand and refine waste data tracking, reporting, and goals		
MC1.3	Implement food waste prevention and diversion program	20,835	
MC1.4	Promote C&D recycling and reuse	2,040	
MC1.5	Conduct recycling and composting outreach and education		
MC1.6	Implement the zero waste strategy		
NS1.1	Promote urban forest stewardship and tree preservation	65,946	
NS2.1	Promote green stormwater infrastructure and low-impact development		
NS2.2	Develop a water security strategy		
NS2.3	Encourage sustainable landscaping and water conservation		
NS2.4	Provide greywater reuse education		
T1.1	Promote EV adoption	58,923	
T1.2	Develop EV infrastructure plan	10,236	
T1.3	Implement codes requiring EV infrastructure		
T1.4	Transition County fleet to EVs		
T2.1	Expand mixed-use, transit oriented development policies	17,986	
T2.2	Continue public transit education campaign		
T2.3	Advocate and partner regionally to improve transit network		
T2.4	Encourage multimodal transportation		
T2.5	Expand non-motorized transportation options and accessibility	372	
T2.6	Develop a CTR program		
TOTAL		865,603	

GHG Reductions

Modeling suggests that implementation of proposed draft CAP measures could reduce emissions by **29% by 2030, 87% by 2040, and 88% by 2050**. The following CAP strategies and actions are the highest contributors of GHG emission reductions through 2050:

- Electric equipment replacement at burnout
- Adopt green building standards
- Encourage energy efficiency and electrification retrofits
- Promote EV adoption
- Promote urban forest stewardship and tree preservation

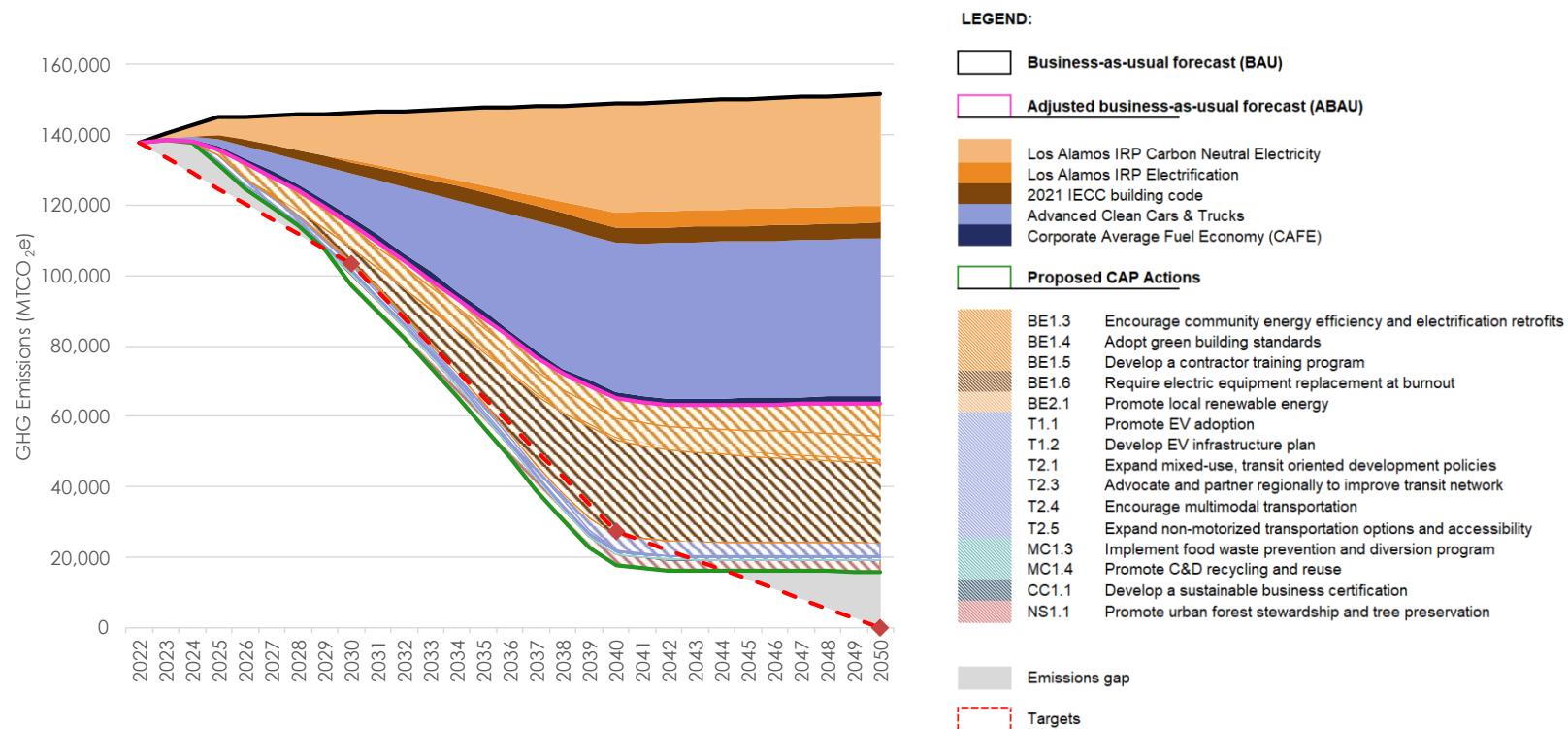


Figure 1. Modeled GHG reductions

Table 1. Proposed CAP Actions and Modeled GHG Reductions

		Cumulative Reductions (MTCO ₂ e)		
		2030	2040	2050
BE1.3	Encourage community energy efficiency and electrification retrofits	2,650	35,515	110,581
BE1.4	Adopt green building standards	25,545	84,488	145,656
BE1.5	Develop a contractor training program	597	6,884	18,938
BE1.6	Require electric equipment replacement at burnout	5,856	165,700	407,200
BE2.1	Promote local renewable energy	3,072	5,030	5,030
T1.1	Promote EV adoption	1,878	18,248	58,923
T1.2	Develop EV infrastructure plan	1,878	10,236	10,236
T2.1	Expand mixed-use, transit oriented development policies	8,255	15,112	17,986
T2.3	Advocate and partner regionally to improve transit network	244	376	376
T2.4	Encourage multimodal transportation	244	1,208	1,208
T2.5	Expand non-motorized transportation options and accessibility	243	372	372
MC1.3	Implement food waste prevention and diversion program	4,702	12,682	20,835
MC1.4	Promote C&D recycling and reuse	460	1,242	2,040
CC1.1	Develop a sustainable business certification	91	196	275
NS1.1	Promote urban forest stewardship and tree preservation	3,140	34,543	65,946

Table 2. Emissions trajectories under examined scenarios.

		2030	2040	2050
	TARGET (% reduction compared to 2022)	25%	80%	100%
	BAU (MTCO ₂ e)	146,140	148,793	151,456
	BAU (% reduction compared to 2022)	6%	8%	10%
	ABAU (MTCO ₂ e)	114,611	65,173	63,629
	ABAU (% reduction compared to 2022)	-17%	-53%	-54%
	Proposed CAP Actions (MTCO ₂ e)	97,339	17,635	15,973
	Proposed CAP Actions (% reduction compared to 2022)	-29%	-87%	-88%

Cost

Modeling suggests that the total net present value (NPV) community cost of implementing select CAP actions are equivalent to an average cost of about \$3 per resident per year. Much of these savings to the community are in the form of rebates/incentives and energy/fuel cost savings.

Table 3. Net costs associated with select CAP actions therein (negative values are net cost savings).

ID	Action	NPV Costs to Gov't	NPV Costs to Community	Total NPV Costs	Public Benefit (PV Avoided Climate Costs)	Net Public Cost (NPV)	Per-Capita NPV Community Costs	Ongoing FTE
BE1.3	Incentivize electrification retrofits	\$166,971	\$25,682,186	\$25,849,157	(\$5,850,484)	\$19,998,673	\$1,294	0.09
BE1.4	Adopt green building standards	\$593,664	(\$14,446,531)	(\$13,852,867)	(\$8,298,132)	(\$22,150,999)	(\$728)	0.33
BE1.2	Establish an energy benchmarking program for municipal buildings	\$1,402,718	\$0	\$1,402,718	(\$944,586)	\$458,132	\$0	1.00
T1.2	Develop EV infrastructure plan	\$895,346	(\$37,445)	\$857,901	(\$624,417)	\$233,483	(\$2)	0.20
T1.4	Transition County fleet to EVs	(\$1,974,747)	\$0	(\$1,974,747)	(\$3,613,425)	(\$5,588,173)	\$0	0.00
T2.5	Expand non-motorized transportation options and accessibility	\$17,146,368	\$198,802	\$17,345,170	(\$24,477)	\$17,320,693	\$10	0.50
T2.6	Develop a CTR program	\$447,518	\$0	\$447,518	(\$195,949)	\$251,569	\$0	0.30
CR1.3	Support the local food system	\$372,931	(\$578,890)	(\$205,959)	\$0	(\$205,959)	(\$29)	0.25
		Total	\$19,050,768	\$10,818,122	\$29,868,891	(\$19,551,471)	\$10,317,419	\$545
		Average	\$2,381,346	\$1,352,265	\$3,733,611	(\$2,443,934)	\$1,289,677	\$68
								\$22
								\$3

Cost Effectiveness

With the GHG reductions and overall costs estimated, we can estimate the cost effectiveness of proposed CAP actions (in \$/MTCO₂e reduced; see Table 6). Highly cost-effective actions include adopting green building standards, transitioning County fleet to EVs, and developing an EV infrastructure plan. Less cost-effective actions include incentivizing electrification retrofits (largely due to natural gas and electricity prices) and expanding non-motorized transportation options and accessibility.

Table 4. Cost effectiveness of select CAP actions.

ID	Action	\$/MTCO ₂ e (Gov't)	\$/MTCO ₂ e (Community)
BE1.3	Incentivize electrification retrofits	\$2	\$232
BE1.4	Adopt green building standards	\$4	-\$99
BE1.2	Establish an energy benchmarking program for municipal buildings	\$89	\$0
T1.2	Develop EV infrastructure plan	\$87	-\$4
T1.4	Transition County fleet to EVs	-\$31	\$0
T3.4	Expand non-motorized transportation options and accessibility	\$46,035	\$534
T3.5	Develop a CTR program	\$131	\$0

GHG Analysis Assumptions

Inputs and assumptions used for the Adjusted Business-as-Usual scenario are summarized below.

Key	Policy	Description	Value	Milestone Year	Definition	Source(s)
	Los Alamos IRP (2022)	The IRP addresses near-term and long-term resource strategies for the Los Alamos Power Pool from 2022-2041. The IRP states that the Los Alamos Public Utility will be carbon-neutral by 2040. Additionally, the IRP outlines a low care for 10% of natural gas to be electrified by 2041.	100% 10%	2040 2041	% reduction in electricity emissions factor by 2040. % of natural gas to be electrified	2022 Los Alamos Public Utility IRP
	IECC building code (2021)	The IECC building code requires greater energy efficiency in buildings. The Department of Energy estimates that commercial buildings will save 4.7% and residential buildings will save 9.38% of site energy.	5% 9%	2025 2025	% reduction in energy emissions in new commercial buildings % reduction in energy emissions in new residential buildings	2021 International Energy Conservation Code
	Advanced Clean Car and Truck Rules (adopted 2023)	Advanced Clean Car and Truck rules require automakers to deliver an increasing percentage of new zero-emissions vehicles for sale in NM each year. -By 2031 82% of new cars delivered by the automakers to New Mexico will be zero-emissions cars -By 2034 57% of new heavy trucks delivered by the automakers to New Mexico will be zero-emissions trucks -By 2031 40% of new transit buses delivered by the automakers to New Mexico will be zero-emissions transit buses -Excludes motorcycles - Use same turnover rate as cars and light trucks	43% 51% 59% 68% 76% 82% 12	2026 2027 2028 2029 2030 2031 Years	% of passenger car and light truck vehicle sales that are electric by 2026. % of new passenger car and light truck vehicle sales that are electric by 2027. % of new passenger car and light truck vehicle sales that are electric by 2028. % of new passenger car and light truck vehicle sales that are electric by 2029. % of new passenger car and light truck vehicle sales that are electric by 2030. % of new passenger car and light truck vehicle sales that are electric by 2031. The number of years that a vehicle owner is assumed to have the vehicle for before replacing it - for light trucks/passenger. (cell name: CarLTTurnover)	New Mexico Environment Department
			17% 23% 30% 37% 42% 47% 50%	2026 2027 2028 2029 2030 2031 2032	% of heavy truck vehicle sales that are electric by 2026. % of heavy truck vehicle sales that are electric by 2027. % of heavy truck vehicle sales that are electric by 2028. % of heavy truck vehicle sales that are electric by 2029. % of heavy truck vehicle sales that are electric by 2030. % of heavy truck vehicle sales that are electric by 2031. % of heavy truck vehicle sales that are electric by 2032.	

GHG Reduction Strategies Quantification Methodology & Findings

Key	Policy	Description	Value	Milestone Year	Definition	Source(s)
			53% 57% 15	2033 2034 Years	% of heavy truck vehicle sales that are electric by 2033. % of heavy truck vehicle sales that are electric by 2034. The number of years that a vehicle owner is assumed to have the vehicle for before replacing it - for heavy trucks (cell name: HTTurnover)	
			15% 20% 25% 30% 35% 40% 7	2026 2027 2028 2029 2030 2031 Years	% of transit bus sales that are electric by 2026. % of new transit bus sales that are electric by 2027. % of new transit bus sales that are electric by 2028. % of new transit bus sales that are electric by 2029. % of new transit bus sales that are electric by 2030. % of new transit bus sales that are electric by 2031. The number of years that a vehicle owner is assumed to have the vehicle for before replacing it. (cell name: BusTurnover)	
	Corporate Average Fuel Economy (CAFE) (2023 update)	Corporate Average Fuel Economy (CAFE) standards are regulated by the Federal Department of Transportation and supported by the EPA. These standards incrementally increase average fuel economy levels for manufacturers and set related GHG standards. The assumptions made for MPG increase for each vehicle type are based on actual MPG increases since 2010 to understand a realistic increase in overall vehicle MPG's.	0.20 0.10 0.03	Annually Annually Annually	Annual increase in average MPG for passenger cars Annual increase in average MPG for light trucks Annual increase in average MPG for heavy trucks and transit buses	US Environmental Protection Agency (EPA)

Inputs and assumptions used for the CAP action-specific GHG analysis are summarized below.

CAP Action ID	Action Short Name	Value	Unit	Source(s)
BE1.3	Encourage energy efficiency and electrification retrofits	39% 0.5% 89%	energy savings from efficiency upgrades buildings retrofit per year natural gas transitioned to electricity per retrofit	BE2.1_BE2.2_BE1.3_Efficiency savings.pdf (for 0.5% buildings retrofit estimate); NatGasUseAssumption.pdf ("National site energy savings are also substantial, with average savings of 31%–47%, depending on ASHP performance level, and 41%–52% when combined with envelope upgrades.") ("According to RECS, of the natural gas used in the residential sector 63% goes toward space heating and 26% toward water heating.")
BE1.4	Adopt green building standards	21% 22%	energy savings in NEW residential homes from efficiency standards energy savings in NEW and EXISTING commercial buildings by 2050	BE1.4_HERSrating.html BE1.4_SBPS.pdf
CC1.1	Develop a sustainable business certification	2% 2%	participation rate increase in energy efficiency	CC1.1_Census_Employers.pdf 2020 City of Dublin CAP (Appendix C, page 12); County staff
BE2.1	Incentivize electrification retrofits	0.50%	electrification increase beyond action BE 1.3	2018 Energy Efficiency Study; DublinCAP_2020.pdf (Appendix C, page 12) [NOTE THAT THIS ACTION WAS COMBINED WITH BE1.3]
BE2.2	Develop a contractor training program	39% 0.25% 89%	energy savings from efficiency upgrades buildings retrofit per year natural gas transitioned to electricity per retrofit	Same as BE1.3
BE2.3	Electric equipment replacement at burnout	7%	annual reduction in natural gas usage for residential/commercial buildings, summing to 100% after 15 years	Assume 15-year equipment life
BE3.1	Promote local renewable energy	2% 14	households retrofit with rooftop solar annually MWh achievable per household	NREL benchmark of 8 kW PV system: https://www.nrel.gov/docs/fy23osti/87303.pdf , assume 5 hours of full daylight
T2.1	Expand mixed-use, transit oriented development policies	2.7%	annual reduction in overall VMT	2021 California Air Pollution Control Officers Association's Guide for GHG Emissions Reductions (CAPCOA) (T-3) Transportation_EDLVMTModel.xlsx
T3.2	Advocate and partner regionally to improve transit network	0.2%	annual reduction in passenger vehicle VMT	2021 California Air Pollution Control Officers Association's Guide for GHG Emissions Reductions (CAPCOA) (T-24; T-25) Transportation_EDLVMTModel.xlsx
T3.3	Encourage multimodal transportation	1.47%	annual reduction in passenger vehicle VMT	2021 CAPCOA (T-9)
T3.4	Expand non-motorized transportation options and accessibility	0.2%		EcoDataLab's Vehicle Miles Traveled Model
T1.1	Promote EV adoption	5%	higher new EV adoption than statewide average	Consultant assumption

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CAP Action ID	Action Short Name	Value	Unit	Source(s)
T1.2	Develop EV infrastructure plan	5%	higher new EV adoption than statewide average	Consultant assumption
MC1.3	Implement food waste prevention and diversion program	5%	residential efficiency	Tacoma's Sustainable Materials Management Plan
		50%	residential participation	Diversion Efficiency; County staff
		80%	commercial efficiency	
		100%	commercial participation	
MC1.4	Promote C&D recycling and reuse	30%	efficiency (residential and commercial)	2010 New Mexico State Solid Waste Assessment; Tacoma's Sustainable Materials Management Plan
		25%	participation (residential and commercial)	Diversion Efficiency
CC1.1	Develop a sustainable business certification	2%	business participation	Tacoma's Sustainable Materials Management Plan
		10%	increase in waste diversion	Diversion Efficiency; 2021 Los Alamos County U.S. Census Quick Facts
NS1.1	Promote urban forest stewardship and tree preservation	0.05%	new acres of tree cover annually (equivalent to an increase of .5% from the County's existing tree cover)	2020 New Mexico GHG Inventory and Forecast Los Alamos' ICLEI LEARN Report

Cost Analysis Inputs & Assumptions

Inputs and assumptions used for the cost analyses are summarized below. Referenced sources are cited in the “References” section of this appendix. All calculations are detailed in the “LACAP_ActionAnalysisWorkbook.xlsx” document.

Universal cost analysis assumptions:

- Real discount rate: 3%
- County staff labor cost: \$83,445/year
- Average energy rate over implementation timeframe (average monthly current rates from Los Alamos DPU; projected future trends from U.S. Energy Information Administration):
 - Residential electricity: \$0.11/kWh
 - Commercial electricity: \$0.08/kWh
 - Residential natural gas: \$0.73/therm
 - Commercial natural gas: \$0.75/therm

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ID	Action	Gov't Cost Assumptions/Comments	Community Cost Assumptions/Comments
BE2.1	Incentivize electrification retrofits	<p>General</p> <ul style="list-style-type: none"> - Assuming the County can incorporate the following tasks into existing positions. <p>Engage in Community Outreach & Education</p> <p><u>Develop a Formal Ed & Outreach Plan</u></p> <p><i>One-time Costs</i></p> <ul style="list-style-type: none"> - 200 hours to develop this plan (Consultant estimate) <p><u>Develop & Share Resources</u></p> <p><i>One-time Costs</i></p> <ul style="list-style-type: none"> - 400 hours to update County website, update utility bill inserts, develop pamphlets, and develop other resources (Consultant estimate) <p><i>Annual Costs</i></p> <ul style="list-style-type: none"> - Staff time to table at events (6 hours to prep + table, 2 staff, once a month) (Consultant estimate) - \$250 budget for material/technological resources <p><u>Stay Updated on Financing Options</u></p> <p><i>Annual Costs</i></p> <ul style="list-style-type: none"> - 50 hours to research and incorporate novel clean energy financing options into education and outreach resources (Consultant estimate) <p>Savings</p> <ul style="list-style-type: none"> - No identified savings for the County 	<p>Costs</p> <p>Annual Costs</p> <ul style="list-style-type: none"> - Includes increased electricity costs and installation costs, including the following average cost differentials compared to conventional versions: <ul style="list-style-type: none"> -- Residential heat pump: +\$1,250 (Heat Pump Cost; Gas Furnace Cost) -- Residential water heater: +\$768 (Water Heat Pump Cost; Gas Water Heater Cost) -- Residential stove top: -\$395 (Electric Cooktop Cost; Gas Stovetop Cost) -- Commercial heat pump: +\$7,200 (Commercial Heat Pump Cost; Commercial HVAC Replacement Cost) - Includes federal rebates available from the High-Efficiency Electric Home Rebate Act (HEEhra). <p>Savings</p> <p>Annual Savings</p> <ul style="list-style-type: none"> - Includes energy cost savings (reduced natural gas costs).
BE1.4	Adopt green building standards	<p>Develop & Adopt Green Building Performance Standard</p> <p><i>One-time Costs</i></p> <ul style="list-style-type: none"> - 150 hours to research & develop a standard (Shoreline Cost Assessment) <p><i>Annual Costs</i></p> <ul style="list-style-type: none"> - 175 hours to implement and enforce the standard (Shoreline Cost Assessment) <p>Educate Community on the Value of a GBPS</p> <p><i>Annual Costs</i></p> <ul style="list-style-type: none"> - 0.25 FTE to develop a community education plan and implement it. Implementation includes activities to educate the community, provide transition assistance and conduct outreach (Lake Stevens Cost Assessment) - \$5,000 budget (Consultant Estimate) 	<p>Costs</p> <p>Annual Costs</p> <ul style="list-style-type: none"> - Assume cost of \$1.83 per sq ft to comply with standards, after available tax incentives (Green Building Cost, Green Building Tax Incentives). Used Impact Analysis data to determine number of sq ft upgraded per year. - Assume average house size of 2,087 square feet.¹ <p>Savings</p> <p>Annual Savings</p> <ul style="list-style-type: none"> - Includes energy cost savings from reduced consumption.

¹ <https://www.fool.com/the-ascent/mortgages/articles/how-big-is-your-home-here-is-the-average-home-size-by-state/>

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ID	Action	Gov't Cost Assumptions/Comments	Community Cost Assumptions/Comments
BE1.2	Establish an energy benchmarking program for municipal buildings	<p>Establish Benchmarking Criteria <i>One-time Costs</i> - 140 hours of staff time to research and establish criteria (Consultant estimate)</p> <p>Perform ROI Analysis <i>One-time Costs</i> - 240 hours to conduct the analysis; this includes collecting the data and cost estimates (80 hours), analyzing them (80 hours), and reporting results (80 hours) (Consultant estimate)</p> <p>Earmark Recurring Funding <i>Annual Costs</i> - 2 hours monthly to research, track, and keep up-to-date on funding opportunities (Consultant Estimate)</p> <p>Implement and Maintain Building Performance Dashboards <i>One-time Costs</i> - 240 hours to implement an internal dashboard; this includes collecting and processing data (80 hours), building visuals (80 hours), writing documentation (40 hours), and training (40 hours) (Consultant estimate) - 100 hours to implement an external, public-facing dashboard (80 hours) and market it to the community (20 hours) (Consultant estimate) <i>Annual Costs</i> - 150 hours to maintain the dashboards (Consultant estimate)</p> <p>Implementing Efficiency Upgrades <i>Annual Costs</i> - Costs and savings of an energy retrofit include the following assumptions: - 623,919 square feet of county-owned buildings (County staff). - County facility energy consumption as sourced from municipal GHG inventory. - 30% reduction in energy use for retrofit that costs \$2.50/sqft in 2010 dollars (Energy Efficiency Retrofits for Commercial and Public Buildings). - 1 FTE to manage the retrofit process (Consultant Estimate).</p>	- No estimated community savings from this action

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ID	Action	Gov't Cost Assumptions/Comments	Community Cost Assumptions/Comments
T1.2	Develop EV infrastructure plan	<p>General/Background In Los Alamos, installation of three Level 1 chargers is underway – the County is waiting on supply chain. Others are Level 2 and Level 3, some are free, have rates, are on public property, and are located at businesses. A few apartment complexes have and are beginning to install more chargers for their residents. Assume charger installation and revenue generation begins in year 3 (After EV Infrastructure Plan developed).</p> <p>Develop & Implement EV Infrastructure Plan <i>One time costs</i> Developing an EV infrastructure plan is anticipated to be one time cost of \$200,000 (Consultant estimate based on past work).</p> <p><i>Annual costs</i> - Assume County installs 5 new chargers every year over implementation timeframe. (Assumption based on 70-80 chargers installed over 3 years - as indicated in CFI grant application - and that County pays for 25% of these chargers), with an average maintenance costs of up to \$400 annually (Alternative Fuels Data Center). - Includes costs to the County to install and maintain publicly available charging infrastructure after tax credits and CPI adjustment.</p> <p>- Assume 25% of new chargers will be on County gov't-owned spaces (and thus they incur the costs if providing free charging) and 75% will be owned and operated by private entities (revenues go to charging companies). Assume County pays \$0.49/kWh (Federal Workplace Charging Fee). - Used Impact Analysis to calculate increased kWh that will be used for EVs under the action. Assume by 2030, 30% of charging will occur at public chargers (Public EV Charging Trends).</p> <p><i>FTE</i> Assume 0.1 (0.1 for Woodinville) dedicated to implementing this plan and another 0.1 FTE (0.1 FTE for Woodinville) for outreach and partnership efforts.</p> <p><i>Annual Savings</i> - <i>Assumed no annual savings because County provides free EV charging for the stations they own.</i> - <i>Calculation can be adjusted to provide County revenue for charging at County-owned stations.</i></p>	<p>Costs - EVs are, on average, \$10k more expensive than traditional vehicles. Given current \$7k federal rebate, this is lowered to \$3k. - Assume increased kWh cost from impact analysis, assuming 30% of charging occurs at public chargers at \$0.49/kWh and the rest occurs at home using residential electricity rates.</p> <p>Savings - EV owners save on average \$300 annually on repairs when compared to ICE vehicle owners (assume over 5 year car ownership per vehicle) (Woodinville Cost Analysis, Consumer Reports). - Assume reduced gasoline/diesel costs from impact analysis, using standard gasoline/diesel per-gallon rates.</p>

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ID	Action	Gov't Cost Assumptions/Comments	Community Cost Assumptions/Comments
T1.4	Transition County fleet to EVs	<p>Prioritize Vehicles by Retirement & EV Viability</p> <p><i>One-time Costs</i></p> <ul style="list-style-type: none"> - Staff hours to prioritize vehicles and understand EV viability for various vehicle types: 25 staff hours. Assume this is a one-time cost (Consultant estimate). <p>Explore EV Replacement Options & Budget</p> <p><i>One-time Costs</i></p> <ul style="list-style-type: none"> - Includes staff hours to explore various EV replacement options and integrate into budget planning. Calculated an average hours per vehicle type and spread across the implementation timeline as a yearly cost (Consultant estimate). Assume average of 25 staff hours per vehicle type (14 vehicle types). <p>Purchase Electric Alternatives</p> <p><i>Annual Costs</i></p> <ul style="list-style-type: none"> - Calculated difference in cost between an electric and conventional vehicle for each type, including consideration of available rebates. Calculated cost differential for all types of County vehicles (pickups, SUVs, police cars, buses, vans, garbage trucks, etc.) to determine how many of each vehicle type will need to be replaced and what replacement cost would be for the County. <p><i>Savings</i></p> <ul style="list-style-type: none"> - EVs save on average \$300 annually on repairs when compared to ICE vehicles (Consumer Reports (2020)). - Average annual fuel savings estimated using a Ford Lightning truck as an indicator (and then scaled to the total number of vehicles replaced). 	<ul style="list-style-type: none"> - No identified costs/savings to the community

GHG Reduction Strategies Quantification Methodology & Findings

ID	Action	Gov't Cost Assumptions/Comments	Community Cost Assumptions/Comments
T3.4	Expand non-motorized transportation options and accessibility	<p>General The Bicycle Transportation Plan from 2017 outlines several aspects of improving ped/bike infrastructure, including information on completed and planned projects. Use this study to estimate number of miles and potential cost.</p> <p>Supporting Relevant Plans Costs - Assume 0.5 FTE for supporting relevant plans and overseeing ped/bike improvement (Pleasanton CAP, Sedona CAP).</p> <p>Improving Infrastructure Annual Costs Assume one major ped/bike infrastructure project every 5 years - using County project estimates.</p> <p>Additional infrastructure per year - 1 miles of additional bike infrastructure (Consultant estimate). Designated bike routes cost \$10k/mile as of 2019 in California (Bike Infrastructure Estimated Costs), which may be somewhat less expensive in New Mexico. - 1 miles of additional pedestrian infrastructure (Consultant estimate). Concrete sidewalks cost \$8.63/sq ft as of 2023 (Concrete Sidewalk Costs).</p> <p>Savings - Note that no County savings included from grants, taxes, existing funds/budgets, etc.</p>	<p>Savings - Assume reduced vehicle fuel costs from reduced VMT (from impact analysis).</p>
T3.5	Develop a CTR program	<p>General Los Alamos has promoted the "Drive Less Los Alamos" Walk, Bike, Ride, Carpool Initiative since 2022. This initiative provides resources on the Los Alamos County Trail Network, cycling safety measures, Atomic City Transit and Afternoon Express routes and schedules, New Mexico Park & Ride operations, and other commuting measures to reduce community VMT. In addition, a flexible work schedule policy is currently in development.</p> <p>Developing the CTR Program Annual Costs - Estimate 0.3 FTE needed to provide resources to employees, create outreach materials, partner with local employers, and track progress (Consultant estimate).</p>	- No identified costs/savings to the community
CR1.3	Support the local food system	<p>Staff time to support the local food system Costs Annual Costs - Estimate 0.25 FTE to provide outreach, education, and foster relationships with local businesses/organizations and regional groups (Consultant estimate).</p> <p>Annual Savings - Savings for County not determined. Savings will likely go to businesses and community members.</p>	<p>Costs - Only savings identified.</p> <p>Savings - Estimated 10% price difference between shopping at farmers markets/Cooperative Market and non-local grocery stores (10% cheaper to buy local) (Buying Local Price). - Estimate 0.19% percent of consumers will buy more locally sourced food per year.</p>

References

GHG Analysis

Source Name	Description
2022 Los Alamos Public Utility IRP	The IRP addresses near-term and long-term resource strategies for the Los Alamos Power Pool from 2022-2041. The IRP states that the Los Alamos Public Utility will be carbon-neutral by 2040. Additionally, the IRP outlines a low case for 10% of natural gas to be electrified by 2041.
2021 International Energy Conservation Code	The IECC building code requires greater energy efficiency in buildings. The Department of Energy estimates that commercial buildings will save 4.7% and residential buildings will save 9.38% of site energy.
Consultant Assumptions Document	Consultant document that lays out ABAU assumptions across sectors.
Corporate Average Fuel Economy (CAFE) Standards	Corporate Average Fuel Economy (CAFE) standards are regulated by the Federal Department of Transportation and supported by the EPA. These standards incrementally increase average fuel economy levels for manufacturers and set related GHG standards. The assumptions made for MPG increase for each vehicle type are based on actual MPG increases since 2010 to understand a realistic increase in overall vehicle MPG's.
2018 Energy Efficiency Study	A research study that investigated estimated energy savings from energy efficiency upgrades.
2020 City of Dublin CAP	A CAP that performed an impact analysis and detailed assumptions in Appendix B.
HERS Efficiency Standards	Provides an estimate of energy savings for HERS rated homes.
Seattle's New Building Emissions Performance Standard	Provides emissions reduction estimates associated with Seattle's Building Emissions Performance Standards for new commercial and residential buildings.
2021 Los Alamos County U.S. Census Quick Facts	U.S. Census quick facts. Provided an estimate of total number of employers.
2021 California Air Pollution Control Officers Association's Guide for GHG Emissions Reductions	A comprehensive handbook that provides emissions reduction estimates for various climate actions.
EcoDataLab's Vehicle Miles Traveled Model	Estimates reductions in VMT for transportation-related climate actions.
Tacoma's Sustainable Materials Management Plan Diversion Efficiency	Describes the diversion efficiency seen for Tacoma's waste diversion programs.
2010 New Mexico State Solid Waste Assessment	Provided estimate for amount of waste that is estimated to be construction and demolition.
2020 New Mexico GHG Inventory and Forecast	Provided estimate for amount of carbon sequestered per acre.
Los Alamos' ICLEI LEARN Report	Describes emissions and sequestration from land use changes in Los Alamos County.
U.S. Census Population Estimates	The U.S. Census' population estimates for Los Alamos County.
University of New Mexico Population Projection Estimates	The University of New Mexico's population projection estimates out to 2040 by county.
Detailed Inventory Data for Wedge	Provided inventory data needed for the wedge, including activity data, # of people served, and emissions factors.

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2021 Los Alamos County U.S. Census Quick Facts	U.S. Census quick facts. Provided an estimate of total number of businesses.
Los Alamos County Employment Projections Out to 2025	Includes Los Alamos County employment projections based off of LANL employment growth projections.
Los Alamos County Commercial Square Footage	Los Alamos County commercial square footage excluding LANL.
Natural Gas Use Assumption	Energy efficiency estimates for heat pump conversion based on ACEEE study.

Cost Analysis

Source Short Name	Description	Link
Inflation Forecasts - Survey of Professional Forecasters	Provides the 1 year and 10 year inflation forecasts for each year up to 2023 Q2. Using the 10 year forecast from 2023 Q2.	https://www.philadelphiad.org/surveys-and-data/real-time-data-research/inflation-forecasts
Discount Rate Details	About discount rates from UW	https://faculty.washington.edu/zerbe/docs/discount_rates/
CPI Estimates	CPI estimates from the Federal Reserve Bank of Minneapolis starting from 1913	https://www.minneapolisfed.org/about-us/monetary-policy/inflation-calculator/consumer-price-index-1913
Social Cost of Carbon Estimates	Provides the social cost of carbon estimates from the Washington Utilities and Transportation Commission	https://www.utc.wa.gov/regulated-industries/utilities/energy/conservation-and-renewable-energy-overview/clean-energy-transformation-act/social-cost-carbon
2020 RECS Survey Data	Provides data on total and average consumption of various forms of energy by state	https://www.eia.gov/consumption/residential/data/2020/index.php?view=state#e
EIA Electricity Rates by State	Contains the rate per kWh for each state. Includes the commercial and residential rates for Feb 2023.	https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a
EIA Natural Gas Cost Data	Natural gas cost data for the most recent months and by state.	https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm
EIA Petrol/Diesel Cost Data	Petroleum cost data by state and time period	https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_a.htm
Avg MPG for Passenger Vehicle	Average fuel economy for a passenger vehicle in the US	https://afdc.energy.gov/data/10310
Avg Range of an EV	Average range of an EV	https://www.energysage.com/electric-vehicles/buyers-guide/mpg-electric-vehicles/
Avg EV miles per kWh	Average miles per kWh for an EV	https://www.inchcalculator.com/convert/mile-per-gallon-equivalent-to-mile-per-kilowatt-hour/
Avg MPG for Light/Heavy Duty Vehicle	Average fuel economy for a light or heavy duty vehicle	https://afdc.energy.gov/data/10310
EIA Housing Unit Square Footage CO	EIA Highlights for square footage in U.S. homes by state, 2020	State Square Footage.pdf (eia.gov)
ICCT EV Charging Cost	T1.2	Estimating electric vehicle charging infrastructure costs across major U.S. metropolitan areas (theicct.org)
Alternative Fuels Data Center	T1.2 Alternative Fuels Data Center: Charging Infrastructure Operation and Maintenance	https://afdc.energy.gov/fuels/electricity_infrastructure_maintenance_and_operation.html#:~:text=While%20actual%20maintenance%20costs%20vary,for%20an%20additional%20annual%20fee.
Alternative Fuels Data Center: New Mexico	T1.2 Alternative Fuels Data Center: Charging Infrastructure Operation and Maintenance	Alternative Fuels Data Center: New Mexico Laws and Incentives (energy.gov)
Public EV Charging Trends and Costs	T1.2	Can public EV fast-charging stations be profitable in the United States? McKinsey femp-workplace-charging-fee-calculator.xlsx (live.com)
Federal Workplace Charging Fee	T1.2	EV Market Share by State EVAdoption
EV Market Share		
Concrete Sidewalk Costs	T3.4 Information on the costs of various types of concrete sidewalks as of 2023, includes an average as well.	https://www.lawnstarter.com/blog/cost/concrete-sidewalk-price/
Bike Infrastructure Estimated Costs	T3.4 Some estimates gathered by Streetsblog Cal from various planners for bike infrastructure in California as of 2019.	https://cal.streetsblog.org/2019/08/30/breaking-down-caltrans-cost-estimate-of-the-complete-streets-bill
Conventional Diesel Loader Cost Range	T1.4 Mentions the cost range of various loader sizes.	https://www.linkedin.com/pulse/how-much-does-cost-buy-track-loader-landscaping-beacon-funding
Dump Truck Cost	T1.4 About the average cost of ownership for a dump truck	https://www.truxnow.com/blog/how-much-does-a-dump-truck-cost
Ford F150 Lightning Details	T1.4 Details about the Ford F150 Lightning pick up truck.	https://www.ford.com/trucks/f150/f150-lightning/models/f150-pro/
2023 Electric SUV Price Range	T1.4 2023 prices for various electric SUVs available in the US today.	https://www.roadandtrack.com/rankings/g43920664/cheapest-electric-suvs/
Oakdale Police Adds EVs	T1.4 Oakdale Police department added a couple Ford Mach-Es to their fleet. Also has an estimate for the cost of building out the police modifications.	https://www.police1.com/police-products/vehicles/articles/calif-police-department-to-add-two-electric-vehicles-to-its-fleet-MWY0gfAlCfWEIBw/

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South Pasadena Police Transition to EVs	T1.4 South Pas Police department completely transitioned their fleet to EV, purchasing Tesla model 3 and Ys.	https://gwwire.com/2023/05/09/california-citys-police-car-fleet-going-all-electric/
Ford Mach E Cost	T1.4 Cost of a base model Ford Mach E	https://www.ford.com/suvs/mach-e/
Tesla Model 3 Cost	T1.4 Cost of a base model Tesla Model 3	https://www.edmunds.com/tesla/model-3/
LADOT Zero Emission Bus Rollout Plan	T1.4 Details on LADOT's transition to a zero emission bus fleet. Has estimates on the cost of various types of electric buses in various years.	https://ww2.arb.ca.gov/sites/default/files/2020-12/LADOT_ROP_Reso_ADA12172020.pdf
Ford Commercial EV Van Pricing	T1.4 Pricing details on various types of commercial EV trucks/vans from Ford.	https://www.ford.com/commercial-trucks/e-transit/pricing-and-incentives/?gnav=shopnav-io
Mullen Electric Cargo Van Pricing	T1.4 Pricing details on Mullen's electric cargo van and truck.	https://www.automotive-fleet.com/10198178/mullen-announces-pricing-for-electric-cargo-van-cab-chassis-truck
Electric Fire Truck Cost	T1.4 Pricing details on electric fire truck.	https://electrek.co/2022/05/17/electric-fire-truck-deployed-us-lafd/
Conventional Fire Truck Cost	T1.4 Pricing details on conventional fire truck.	https://www.firerescue1.com/fire-products/fire-apparatus/articles/1-million-dollars-for-a-fire-truck-yup-and-heres-why-miZF81kYVmMcMoZ0/
Electric vs Conventional Bus	T1.4 Pricing details on ZE buses.	https://www.sierraclub.org/sites/www.sierraclub.org/files/sce/new-jersey-chapter/Handouts/VW_Zero_Emission_Bus_Factsheet.pdf
Conventional Bucket Truck Cost Range	T1.4 Pricing details on bucket truck.	The Ultimate Guide On Boom & Bucket Trucks TLC Auto & Truck Repair Service Center (tlcautotruck.com)
Conventional Semitruck Cost	T1.4 Pricing details on semitruck.	How Much Does a Semi Truck Cost? Your 2022 Guide - Durabak Durabak (durabakcompany.com)
2023 Dodge Charger Cost	T1.4 Cost for a 2023 Dodge Charger	https://www.dodge.com/charger.html
Mower Cost	T1.4 Pricing details on electric vs gas mower.	Electric vs. Gas Lawn Mowers (lawnlove.com)
Electric ATV/UTV Cost	T1.4 Pricing details on electric ATV.	https://www.atv.com/products/electric-atvs-a-consumers-guide-1625.html
Conventional ATV/UTV Cost	T1.4 Pricing details on gas-powered ATV.	https://www.superatv.com/offroad-atlas/how-much-does-a-side-by-side-cost/
Farmers Market Local Economy	T3.4	Farmers Market Facts & Figures 2022 (farmersmarketcoalition.org)
New Mexico Grocery Price	T3.4 Determine how much community members spend on groceries	These states spend the most on groceries in America: study (thehill.com)
Buying Local Price	T3.4 Used to calculate difference between local food and non local food	Is Buying Local Less Expensive? Debunking a Myth—Assessing the Price Competitiveness of Local Food Products in Canada - PMC (nih.gov)
Local Food Sales	T3.4	USDA ERS - Local Food Sales Continue to Grow Through a Variety of Marketing Channels
Building Retrofits RMI	BE2.3	https://rmi.org/wp-content/uploads/2017/04/Pathways-to-Zero_Bldg-Case-for-Deep-Retrofits_Report_2012.pdf
Energy Efficiency Retrofits for Commercial and Public Buildings	BE1.2 Has cost estimates on a per square foot basis for energy efficiency retrofits for commercial and public buildings	https://paceworx.com/wp-content/uploads/srm/pdf/whitepapers/Energy_Efficiency_Retrofits_Jul10.pdf
About Heat Pumps for Southwest Homes	BE2.1 Has estimates on average annual energy usage of various types of heat pumps for the southwest region of the US	https://www.swenergy.org/wp-content/uploads/southwest-heat-pump-study-2022.pdf
Electric Oven Energy Usage	BE2.1 Estimates the average annual energy usage for an electric stovetop + oven	https://www.energysage.com/electricity/house-watts/how-many-watts-does-an-electric-oven-and-stove-use/
Heat Pump Cost	BE2.1 average cost of purchasing and installing a heat pump	https://www.forbes.com/home-improvement/hvac/heat-pump-installation-cost/
Water Heat Pump Cost	BE2.1 average cost of purchasing and installing a water heat pump	https://www.energystar.gov/products/ask-the-experts/what-goes-into-the-cost-of-installing-a-heat-pump-water-heater
Electric Cooktop Cost	BE2.1 average cost of purchasing and installing an electric cooktop	https://www.housedigest.com/924631/how-much-does-it-cost-to-put-in-an-electric-stovetop/

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Commercial Heat Pump Cost	BE2.1 average cost of purchasing and installing a commercial heat pump	https://www.novakheating.com/how-much-does-it-cost-to-install-commercial-hvac-systems/
Gas Furnace Cost	BE2.1 average cost of purchasing and installing a gas furnace	https://www.forbes.com/home-improvement/hvac/how-much-does-a-gas-furnace-cost/
Gas Stovetop Cost	BE2.1 average cost of purchasing and installing a gas stovetop	https://www.angi.com/articles/how-much-should-it-cost-install-gas-stove-home-already-has-gas.htm
Commercial Gas HVAC Replacement Cost	BE2.1 average cost of replacing a gas HVAC	https://capitalimprovement.org/commercial-hvac-cost-calculator/
HEEHRA Rebates	BE2.1 electric home rebates	High-Efficiency Electric Home Rebate Act (HEEHRA) — Rewiring America
Green Building Cost	BE1.4 cost of green building performance upgrades	Rules of Thumb (epa.gov)
Green Building Tax Incentives	BE1.4 green building tax incentives	IRA update: It's a go for green building tax incentives U.S. Green Building Council (usgbc.org)
Federal EV Rebate	T1.4 federal rebates for EVs	Electrification Coalition - Inflation Reduction Act Impacts on Electric Vehicles
2022 Electricity Rates	2022 electricity rates for Los Alamos County	
2022 Gas Rates - Average	2022 natural gas rates for Los Alamos County	



APPENDIX J.

Implementation Matrix by Timeframe



Implementation Matrix

The implementation matrix is a living document that will continue to evolve after CAP adoption. The following tables are organized by timeframe and summarize key implementation considerations such as lead department or agency, potential funding sources, and immediate next steps.

Legend:

Timeframe:	 = Ongoing	 = Immediate (1-2 yrs)	 = Near-term (3-6 yrs)	 = Mid-term (7-11 yrs)
Relative cost: Each action includes its relative cost, considering direct costs to the County and community, as well as cost savings. "Not estimated" means that the action was added or changed after the initial analysis.	 = Low	 = Moderate	 = High	
Relative impact: Each action includes its relative GHG reduction or climate resilience impact, considering the needs it addresses and the scope and likelihood of impact. "Not estimated" means that the action was added or changed after the initial analysis.	 = Low	 = Moderate	 = High	
Scope of each action:	 = Community	 = County government operations	 = Both community and County operations	

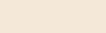
Lead:

CDD: Community Development Department	CSD: Community Services District	PD: Police Department
CMO: County Manager's Office	DPU: Department of Public Utilities	PW: Public Works

Funding:

ATTAIN: Advanced Transportation and Innovation	CMAQ: Congestion, Mitigation, and Air Quality Improvement Program	HMGP: Hazard Mitigation Grant Program	NMED: New Mexico Environment Department
BIL: Bipartisan Infrastructure Law	DOE EECBG: Department of Energy Efficiency and Conservation Block Grants	IIJA: Infrastructure Investment and Jobs Act	PPRF: Public Project Revolving Fund
BRIC: Building Resilient Infrastructure and Communities	DOE WARP: Department of Energy Weatherization Assistance Program	IRA: Inflation Reduction Act	TAP: Transportation Alternatives Program
CDBG: Community Development Block Grant	EMNRD: Energy, Minerals, and Natural Resources Department	LEDA: Local Economic Development Act	
CIG: Conservation Innovation Grants	HEEHRA: High-Efficiency Electric Home Rebate Act	NEVI: National Electric Vehicle Infrastructure	

Ongoing

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE2.2: Expand electric energy resiliency					
	DPU	<ul style="list-style-type: none"> • IRA • IIJA • House Bill 233, Energy Grid Modernization Roadmap 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Continue to expand electric energy resiliency by investing in a diverse set of renewable energy sources such as wind, solar, geothermal, and nuclear, as well as energy storage • Work with DPU staff to align with existing initiatives and increase energy resiliency for the community through the Integrated Resource Plan (IRP) and by providing redundancies within the circuit systems • Research options, steps, and potential challenges to increase battery storage usage so that energy from renewables can be stored and used during peak hours • Explore establishment of microgrids within the systems for energy redundancy and security
MC1.5: Conduct recycling and composting outreach and education					
	PW		 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Build on existing programs to conduct commercial and residential education and outreach on recycling, composting, and waste management best practices, including identifying opportunities to expand programs • Develop commercial, single-family residential, and multifamily residential technical assistance program that offers recycling toolkits, welcome packets, online resources, and in-person outreach to help with waste prevention, recycling, composting, and sustainable purchasing, especially for new community members • Develop standardized waste collection systems for commercial and multifamily properties, including designated colors for collection bins for each waste stream, clear and consistent signage such as posters with "what goes where," and recommendations for front-of-house or public facing bins • Implement targeted commercial food scrap outreach that provides additional outreach for the largest generators (including hospitals, universities, and other institutions). Outreach should include information about known contamination issues that need to be addressed • Assess the waste stream to identify the largest commercial food waste generators • Design engagement/education campaign plans, including developing toolkits, printed and online resources and materials, and in-person outreach

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
NS2.1: Promote green stormwater infrastructure and low-impact development					
○	CDD/PW	<ul style="list-style-type: none"> • BIL • IIJA • NMED River Stewardship Program • CIG 	  		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Continue to invest in green stormwater infrastructure and incentivize low impact development (LID) projects by streamlining permitting processes, prioritizing vulnerable communities most impacted by extreme weather and climate impacts • Evaluate current permitting processes for LID projects and identify opportunities to simplify or streamline to better support LID projects • Utilize GIS and tools like iTree to understand the tree canopy coverage within the city to identify priority areas for additional tree canopy or other green stormwater infrastructure project investments such as rain gardens and bioswales • Building on current work, develop policies and programs that incentivize water-wise tree planting and work with NGOs to establish tree planting or GSI events • Identify ways to reduce concrete and asphalt surfaces in development and encourage addition of permeable surfaces

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CR1.2: Invest in public climate education campaigns					
	CMO	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Invest in public education campaigns about climate resilience and mitigation solutions in partnership with Pajarito Environmental Education Center • Tailor campaigns to educate and empower vulnerable communities, which often experience the earliest and most acute impacts of climate change, face historic and current inequities, and have limited capacity to adapt • Share climate information through targeted community outreach to develop capacity to address sustainability issues • Encourage schools to incorporate sustainability related topics and consider partnering with the Los Alamos High School EcoClub • Form a planning team with key partners, schools, and community groups • In collaboration with the planning team, outline the goals of the education campaigns and determine which vulnerable communities and groups will be the focus of the campaigns • Develop educational materials and messages that are relevant and accessible to the target audiences • Consider partnering with the medical community to educate about the public health impacts from climate change
CR1.3: Support the local food system					
	Lead: CSD Support: CMO	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC • NMED Environmental Justice Small Grants Program 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Promote the Los Alamos Farmers Market on the County's website and social media and at County events • Support and promote community and backyard gardens through coordinated community education and regional collaboration • Collaborate with businesses and organizations such as LA Cares to provide resources and support for food security for all residents • Connect with existing food banks, urban agriculture and gardening organizations, farmers markets, and food security organizations in the county and region; understand what kind of support would be helpful for initiatives and programs already underway

Immediate

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.3: Encourage community energy efficiency and electrification retrofits					
►	Lead: DPU Support: CMO Sustainability Manager	<ul style="list-style-type: none"> IRA New Mexico Clean Energy Grants 	  		<ul style="list-style-type: none"> Identify necessary staff time to devote to program development; secure funding for delivering free energy audits Develop community-wide efficiency and electrification outreach and educational campaign program, including developing promotional/educational materials, reaching out to community organizations and leaders to understand best avenues for engagement (e.g., in-person workshops, tabling at events, social media posts) Identify potential partners and gaps to supplement existing County programming Educate property owners on potential energy-saving renovations to their buildings; focus on cost savings and public health benefits for residents, business, and landlords Identify and compile list of existing incentives, funding sources, resources, and information; promote existing incentives and funding sources, especially for low-income households; focus on cost savings and public health benefits for residents, business, and landlords Develop energy audit program, starting with a pilot program if appropriate; purchase additional DIY energy audit tools such as thermal cameras; provide free home energy audits Provide information about specific retrofits (e.g., weatherization, energy efficient appliances, LED lighting, electric hot water heaters, space heaters, stoves, laundry dryers) Market DPU's "Induction Cooktop Loaner Program" Teach residents how to engage in decision-making regarding the ownership, generation, storage, distribution of, and transition to renewable energy Provide information on available funding for all residents and share what incentives are available to relieve the financial burden for low-income residents. Notify the community when new funding opportunities become available through resources such as the County website, utility bill inserts, and pamphlets and brochures distributed at County events Stay up to date on future clean energy financing options for low-and-moderate income households, such as through the New Mexico Climate Investment Center

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.4: Adopt green building standards					
	Lead: CDD Support: CMO Sustainability Manager	<ul style="list-style-type: none"> Green Building tax incentives IRA 	  		<ul style="list-style-type: none"> Identify necessary staff time to devote to implementation of action Promote fossil fuel infrastructure reduction in new residential, commercial, and municipal construction by adopting a green building performance standard (examples include the Santa Fe County HERS Rating and Seattle Building Energy Performance Standard) Research and decide on standards to adopt, based on noted examples, conversations with relevant parties and County staff, and Council direction Develop education program, including developing promotional/educational materials Educate the community on the cost and public health benefits this will provide for new buildings such as lower utility bills and improved indoor air quality Consider combining outreach and education efforts with BE1.1 and BE1.3, as appropriate Plan to provide technical assistance, educational resources, and outreach during this transition, especially for commercial users of natural gas appliances such as restaurants and community centers Identify technical assistance needs (could be identified as part of outreach program from BE1.3 or contractor training program development from BE1.5) and develop plan for providing technical assistance Research reflective roofing materials to reflect heat Continue monitoring recent federal case law which determined that local governments are prohibited from banning new natural gas hook-ups

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T1.1: Promote EV adoption					
	CMO	<ul style="list-style-type: none"> • NEVI Formula Program • IRA • New Clean Vehicle Tax Credit 			<ul style="list-style-type: none"> • Identify necessary staff time to devote to implementation of action • Encourage EV network expansion by educating the community on available tax incentives and rebates for EV purchases, with a focus on those available to low-income populations • Identify and compile list of existing incentives, rebates, funding sources, resources, and information about EV purchases, prioritizing those that prioritize low-income communities • Develop education program, including developing promotional/educational materials and brainstorming a variety of education avenues (e.g., in-person workshops, tabling at events, social media posts, information on County website) • Convert municipal small engines, lawn/garden equipment, and golf carts, to be fossil fuel free within ten years • Continue pilot for municipal small engine and lawn garden equipment to determine pros and cons • Develop policy to procure municipal small engine and lawn garden equipment. Policy should consider performance and economics with a strong preference for electric items • Develop transition plan for municipal small engines to be fossil free within ten years • Identify partners such as LANL and the school district to work together on fleet conversions to EVs • Currently in design phase for infrastructure needs to charge and store 60+ electric golf carts. Golf carts estimated delivery is 2025

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T1.2: Develop EV infrastructure plan					
►	CMO/PW	<ul style="list-style-type: none"> • NEVI Formula Program • IRA Charging and Fueling Infrastructure Grant Program 	 		<ul style="list-style-type: none"> • Identify necessary staff time to devote to implementation of action, including determining if there is in-house capacity to develop a plan. If not, hire a consultant • Develop and implement an EV infrastructure plan that prepares the County and community for the transition to EVs by mapping infrastructure needs • Partner with the Los Alamos Department of Public Utility, NMDOT, Los Alamos Public School, UNM-LA, and other organizations to develop strategies and identify barriers for EV readiness in key locations, including public spaces, schools, businesses, places of worship, and multifamily homes • Explore funding opportunities, such as federal grants and state incentives to support the planning and installation of EV infrastructure • Build and formalize partnerships with key relevant parties including the Los Alamos Electric Utility, NMDOT, schools, businesses, and community organizations • Map existing EV charging stations and areas that should be prioritized for EV chargers • Establish an EV working group to accelerate the development of charging infrastructure and a robust transition plan • Investigate shaded parking as part of EV infrastructure i.e. solar powered EV chargers

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.1: Expand mixed-use, transit-oriented development policies					
►	CDD	• TAP			<ul style="list-style-type: none"> Identify necessary staff and partners to involve, and determine the staff time needed to implement this action Continue to expand land use zoning standards and codes, such as changes to parking minimums, to promote affordable, transit-oriented, and mixed-use development to reduce urban sprawl Encourage building within walking distance of essential services, when possible, and promote existing complete streets policies and Public Works Design & Construction Standards Support existing County policies to maintain and increase housing options for all residents by engaging with non-profit service providers who oversee daily operations of affordable housing homeownership, rental, and rehabilitation programs. Affordable housing policies may include a “rent-to-own” policy, where a portion of rent is set aside as capital towards the down payment of a housing unit Begin a review of current land use zoning standards, parking minimums, and existing complete streets policies and identify areas for improvement of connectivity and affordability Assess and map prime locations for mixed-development, transit connectivity, and priority intersections Begin exploring additional affordable housing policy and vet with key staff, partners, and the community

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.6: Develop a CTR program					
►	CMO				<ul style="list-style-type: none"> • Develop a commute trip reduction (CTR) program for County employees that builds on the "Drive Less Los Alamos" Walk, Bike, Ride, Carpool Initiative • Continue to provide resources on the Los Alamos County Trail Network, cycling safety measures, Atomic City Transit and Afternoon Express routes and schedules • Encourage employees to utilize alternative modes of transportation when commuting to and from work • Continue to expand flexible work options and remote and hybrid work, for applicable positions, through the Telework and Alternate Work Schedules program, including exploring options such as 4-day work weeks • Encourage local employers to promote CTR, including collaborating with Los Alamos National Laboratory to develop a commuter program and explore flexible work options • Assess County positions to add to the Telework and Alternate Work Schedules program • Assess the recent County commuting survey to better understand commute preferences, challenges, and behavior; design and implement an additional survey if more information is needed • Identify resources to help make sustainable commute choices easier, such as carpool and rideshare programs and partnerships with local employers

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CR1.1: Conduct a vulnerability assessment					
►	CMO/PD (Emergency Management Commander)	<ul style="list-style-type: none"> • New Mexico Climate and Conservation Fund • Resilient Communities Fund • BRIC • HMGP • PPRF 			<ul style="list-style-type: none"> • Identify staff time and capacity needed to conduct the assessment • Conduct a climate hazard vulnerability assessment to understand how extreme weather and other aspects of climate change will impact people, services, and infrastructure, particularly vulnerable populations • Identify vulnerable areas and populations and enhance equity-focused response in emergency planning to extreme temperature events, drought conditions, and wildfires • Establish a planning team with key County staff and partners to oversee the vulnerability assessment • Set clear goals and define the scope of the vulnerability assessment • Collect and review relevant climate and demographic data in the County and begin to identify and map vulnerable populations and critical infrastructure/systems • Reach out to local organizations to form partnerships and begin gathering input from communities on perceived climate risk and vulnerability (such as through a survey or workshop) • Align with Hazard Mitigation Plan • Use https://nmclimaterisk.org/ • Consider incorporating climate emergency/public health planning into existing plans • Research funding mechanism such as Energy Savings Performance Contracts for residential households
CC2.4: Expand community partnerships					
►	CMO	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC • NMED Environmental Justice Small Grants Program 			<ul style="list-style-type: none"> • Establish a vision for engagement and formalize partnerships with representatives from LANL, local schools, community-based organizations, Chamber of Commerce, and service organizations • Through the working group/partnership encourage technology development and innovative solutions to addressing climate challenges • Create communication materials to encourage participation, especially targeting community-based organizations representing those most impacted by climate change • Identify other pertinent beneficial partnerships for the County including state agencies and regional planning districts that could offer expertise and resources on CAP implementation

Near-Term

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.2: Establish an energy benchmarking program for County-owned buildings					
►►	Lead: PW - Capital Projects and Facilities Support: CMO Sustainability Manager	• IRA	 		<ul style="list-style-type: none"> Identify necessary staff time to devote to program development; secure funding for assessments, upgrades, monitoring, and maintenance Establish benchmarking criteria to track building energy and water performance in County-owned and operated buildings using the EPA Energy STAR Portfolio Manager Tool Perform ROI assessments to build the case for necessary upgrades in municipal buildings; identify all relevant County-owned buildings, evaluate energy and water use data, develop strategic plan for building retrofits and/or upgrades Earmark recurring funding to support efficiency upgrades of County buildings Monitor smart meters for gas, water, and electricity currently in place in all relevant County facilities, including buildings and light posts Develop or purchase software for building performance dashboard to track building performance for all County facilities Share the dashboard with the community to highlight and communicate improvements in energy efficiency Explore resources from the ENERGY STAR® Portfolio Manager®

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.5: Develop a training program					
►►	Lead: CDD Support: CMO and DPU	<ul style="list-style-type: none"> Green Building tax incentives IRA 	 		<ul style="list-style-type: none"> Identify necessary staff time to devote to program development Develop training priorities and program content, based on needs identified by partners, relevant parties, and local contractors Identify, support, and/or develop free training programs and resources for local and regional contractors, design professionals, County staff (i.e., plan reviewers, building inspectors, and project managers), and interested members of the public to learn green building skills such as electrification, energy efficiency, and water efficiency retrofits, especially during low-construction times of year Reach out to potential partners to understand training needs and partners' interest in collaborating on the program development or implementation; potential partners may include UNM-LA, NNMCC, and Santa Fe Community College; connect with them for information on existing programs Consider organizing a quarterly open house with contractors Consider combining outreach and education efforts with BE1.1 and BE1.3, as appropriate
BE1.6: Require electric equipment replacement at burnout for County					
►►	CDD	<ul style="list-style-type: none"> IRA 	Not estimated		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Develop policies and programs that will result in replacement of fossil fuel appliances and equipment at the end of their useful life in County-owned and -operated buildings. Policies and programs should focus on major natural gas uses in County buildings, including space/water heating Identify obstacles that could impede progress on electrification, such as needed infrastructure upgrades, and identify opportunities to address these barriers Educate County staff on preparing for replacement before burnout (e.g., through audits and appliance replacement plans) Develop requirements for end-of-life replacement of gas-powered equipment in County buildings with efficient, electric equipment Consult with contractors and building owners on replacing natural gas equipment with electric

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.7: Encourage electric equipment replacement at burnout for community					
►►	Lead: CDD	• IRA	Not estimated		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Encourage replacement of natural gas appliances with electric before or as they approach the end of their useful life Educate community members on how to prepare for replacement (e.g., through audits and appliance replacement plans). Educational programs should focus on major natural gas uses in buildings, including space/water heating, clothes drying, and cooking As part of this work, the County will identify obstacles that could impede progress on electrification, such as needed infrastructure upgrades, and identify opportunities to address these barriers Conduct peer city research on similar natural gas equipment replacement programs Consult with contractors and building owners on replacing natural gas equipment with electric Educate the public on the benefits of electrification through informational handouts, technical assistance, and workshops Advocate for change or clarification of the NM Anti-Donation Clause to allow local governments to provide incentives for energy reduction projects Identify potential partners and advocates for anti-donation clause to allow local governments to provide incentives for energy reduction projects Begin discussions with our state legislative delegation to identify advocates for amendment Explore using sustainability criteria in Metropolitan Redevelopment Area plans Explore how other municipalities are using LEDA and HUD to provide incentives for energy reduction projects

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE2.1: Promote renewable energy					
►►	Lead: DPU Support: CMO	<ul style="list-style-type: none"> • HEEHRA • IRA • Solar Market Development Tax Credit • EMNRD Renewable Energy Production Tax Credit • New Mexico Clean Energy Grants 	 		<ul style="list-style-type: none"> • Determine staff time and capacity needed to promote this action • Support local and statewide standards for sourcing renewable energy generation and grid modernization • Continue to work with DPU as all energy options are explored to best balance demand with public support and feasibility • Facilitate dialogue with DPU, solar energy providers, and community members to educate and highlight on the status of DPU's distributive generation program and the benefits of solar + battery and grid modernization moving forward • Review results of the DPU Distribution System analysis, which is being conducted to prioritize grid modernization based on current and estimated load distribution • Evaluate effective and viable methods to expand DPU's distributive generation resources in a balanced and equitable manner • Identify existing grants, loans, and financial assistance programs to incentivize carbon-neutral power supplies • Advocate for the development of regional or statewide standards, policies, or resources that advance grid modernization including incorporating storage solutions to expand solar generation potential or providing financial assistance to offset infrastructure costs

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T1.4: Transition County fleet to EVs and reduce idling					
►►	PW	<ul style="list-style-type: none"> • Clean Heavy-Duty Vehicles Program • NEVI Formula Program • IRA 			<ul style="list-style-type: none"> • Work with the County Fleet and Transit Divisions and EV Working Group to transition County vehicle fleet to EVs when replacing a fleet vehicle that has reached the end of its usable life, where feasible • When technology is not available, pursue transition strategies such as right-sizing or hybrid vehicles • Consider aligning with New Mexico state target to achieve a zero-emission vehicle fleet by 2035 • Conduct an inventory of current fleet, if not already available • Assess estimated end of life timelines for fleet to identify priority vehicles • Follow implementation steps for T1.1, T1.2, and T1.3 to increase availability of EV charging sites and infrastructure to support additional EV vehicles • Explore policy options to reduce emissions in current vehicle fleets (e.g., idling policies) • Revise and implement a County operations “no idling” policy to reduce GHG emissions and air pollution associated with gasoline-powered vehicles • Develop and implement an educational campaign for County staff • Consider developing and implementing an educational campaign for community members • Staff may have varying comfort levels in working with EVs; consider polling staff on comfort, concerns, and questions and develop protocols for staff training • County Fleet and Transit Divisions are developing a scope of work for a Fleet Conversion and Transit Conversion studies to include an evaluation of expanding charging capabilities at County buildings. Fleet to include a funding for a Fleet Conversion Study was received as part of the FY25 budget process

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.2: Continue public transit education campaign					
▶▶	PW/CMO	• CMAQ			<ul style="list-style-type: none"> Identify necessary staff time to design and implement educational campaign Partner with the media to continue education campaigns that educate on how to use public transit options, showcase transit connections to bike and pedestrian ways, and feature bus rider stories in an effort to combat fear and prejudice while highlighting advantages and accessibility Build on Atomic City Transit's marketing plan to increase awareness of the transit opportunities that are available in Los Alamos and retain and attract customers Continue to teach new riders how to use the Atomic City Transit app and bike racks in an effort to raise Atomic City Transit ridership, which is currently low in the County Develop, review, and understand key performance metrics for community engagement Partner with Atomic City Transit to develop educational materials such as brochures and videos, to provide through various media channels to ensure the community is informed about the benefits and usage of public transit

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.3: Advocate and partner regionally to improve transit network					
►►	PW	• IIJA			<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Continue to work with partners such as Atomic City Transit, LANL, Los Alamos Public Schools, North Central Regional Transit District, and NM Park and Ride to advocate and engage in regional opportunities to improve the transit network to (1) ensure there are safe non-motorized connections to transit facilities, addressing first and last mile improvements, (2) expand transit access to neighborhoods that are not currently served by transit and to services, jobs, and activities for seniors, people with disabilities, and low-income residents, and (3) increase bike storage at transit centers Reference the Transit Center Study to identify priority areas for County transit access, emergency services, and opportunities for regional transit collaboration Use findings from the Transit Study to increase ridership, implement more micro transit options, provide incentives, and increase route frequency Develop and/or maintain regional transit partnerships Assess priority needs for expanded transit service, gaps in transit service, and multi-modal connectivity Advocate to partners for expanded multi-modal transit connections, transit access, and transit stop amenities

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.5: Expand non-motorized transportation options and accessibility					
►►	PW	<ul style="list-style-type: none"> • DOT Transportation Infrastructure Finance & Assistance • IIJA 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Identify and implement projects from the 2017 Bicycle Transportation Plan, Trails and Open Space Management Plan, Bicycle Working Group, and Public Works to expand non-motorized transportation options and infrastructure to support biking, walking, and other means of non-motorized transportation. This includes projects to improve and create bike and walking infrastructure, especially in low-income and older neighborhoods, and invest in County-funded sidewalk improvement for safety and accessibility for all users, with a focus on those with limited mobility • Establish a taskforce/advisory committee with a variety of representatives from the community • Identify priority streets for a complete streets program • Identify gaps in the bicycling and pedestrian network and infrastructure • Solicit public input and community feedback on potential improvements through community workshops and surveys • Consider exploring bike, car and scooter share programs that could be implemented

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
MC1.1: Promote circular economy practices					
►►	Lead: PW – ES Support: CMO	• CPRG			<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Promote circular economy practices, programs, and policies. At the County level, implement an environmental purchasing policy—a policy promoting the procurement of products and services with lower environmental impacts—for all County government agencies and departments. As part of this, develop and define purchasing policy criteria and decision-making processes Develop and vet an environmental purchasing policy for County operations in partnership with key County staff Develop and support community reuse and repair programs, such as fix-it clinics, a community tool library, and local “buy nothing groups” Support existing programs and resources like the Library of Things and the Los Alamos County Eco Station Work in consultation with local businesses to promote local reuse centers and practices Conduct peer city research on circular economy practices Assess locations for community resource centers Purchase and/or run a donation drive to collect resources for community resource centers
MC1.2: Expand and refine waste data tracking, reporting, and goals					
►►	Lead: PW Support: CMO				<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Building on current work, expand waste data tracking and reporting methods to establish new goals, including new zero waste targets and management plan Conduct and expand the scope of future waste characterization studies to include additional sectors (commercial and multifamily) and waste streams (recycling and compost), as well as a more detailed material list for sorting Update the County’s current waste goals and targets to align with zero waste and source reduction priorities, including outlining specific actions and assessments needed to achieve these targets Assess current waste characterization for gaps in material types and sectors Develop an updated material list for waste characterization

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
MC1.3: Implement food waste prevention and diversion program					
►►	Lead: PW Support: CMO	<ul style="list-style-type: none"> • USDA (Food waste reduction program) 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Continue to establish and implement the municipal food composting program. In the short term, prioritize outreach on the new food compost program for high generators of food waste, and in the long-term, look to expand to curbside collection for residents and consider accepting and incentivizing compostable paper and other compostable packaging • Facilitate a food waste prevention network between businesses, non-profits, and research institutions to develop systems and infrastructure to reduce food waste and foster connections between sources of unwanted food and communities in need • Partner with local businesses, restaurants, grocery stores, and food pantries to raise awareness of edible food recovery programs • Build upon existing Zero Waste Los Alamos resources and education campaign that provides food shopping, prep, and storage techniques to reduce spoilage; recipes to reduce food waste; and messages on reducing waste • Perform a waste audit to better understand food waste across the community • Reach out to local food banks to develop partnerships and co-create strategies to improved food waste prevention and diversion • Begin targeted outreach with entities that are high food waste generators
NS1.1: Promote urban forest stewardship and tree preservation					
►►	CSD	<ul style="list-style-type: none"> • Urban & Community Forestry Program 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Reduce the effects of extreme heat and promote healthy communities by increasing native, drought-friendly vegetation cover and enforcing the County's existing tree preservation and mitigation policy • Promote urban forest stewardship through an equitable and inclusive community tree planting and preservation program, focusing "greening" in areas with lower tree coverage and higher exposure to extreme heat • Review and update the County's tree protection ordinance • Develop a plan and guiding principles for urban forest stewardship events and educational campaigns • Develop an incentive system for landowners to plant and maintain trees on private property

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
NS2.2: Develop a water security strategy					
►►	DPU	<ul style="list-style-type: none"> The Drinking Water State Revolving Loan Fund IIJA BIL NMED Water Quality Grant Program 	 		<ul style="list-style-type: none"> Determine staff time and capacity needed to conduct water risk assessment Align with the The Los Alamos Long Range Water Supply Plan (2017) and Source Water Protection Plan (2003) to develop a water security strategy and drought preparedness plan to address water shortages and prepare for climate impacts Promote collaboration and data sharing on water resources with other jurisdictions, and revise land use practices to conserve water in the county Expand existing water conservation programs which encourage the community to reduce daily water use and educate residents on water sources and supply Explore peer jurisdictions' water management plans and incorporation of water management into emergency preparedness plans Identify gaps in the County's Long Range Water Supply Plan and Source Water Protection Plan
NS2.3: Encourage sustainable landscaping and water conservation					
►►	DPU	<ul style="list-style-type: none"> Native Plant Society of New Mexico CIG NMED River Stewardship Program NMED Water Quality Grant Program 	 		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Reduce water consumption from landscaping by planting native and climate appropriate plants Work with landscape companies and homeowners to educate drip irrigation and low pesticide management techniques Support the Water and Energy Conservation Program and Water Rule W-8 to reduce potable water use and encourage management of reclaimed water Develop education on interpreting individual water consumption data to determine general outdoor usage Explore options for rebate programs that provide assistance in water efficiency landscape practices such as replacing grass Align with NS2.2 to determine staff time and capacity needed to develop a long-term county water plan that identifies resources, plans for growth, and outlines a path for conservation Work with partners to begin to identify opportunities to reduce water use at County facilities (e.g., low flow toilets) and recreational areas (e.g., alternative irrigation methods for golf courses)

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CR2.1: Encourage adaptation upgrades					
►►	CMO	<ul style="list-style-type: none"> Resilient Communities Fund BRIC DOE WAP DOE EECBG New Mexico Clean Energy Grants 			<ul style="list-style-type: none"> Form a planning team with key County staff or with Environmental Sustainability Board to identify grants to offer rebates/incentives, including determining eligibility Solicit grants to offer rebates and incentives for eligible entities to encourage adaptation upgrades on residential and commercial properties (e.g., reducing paved areas to address runoff and heat, installing green roofs, permeable pavement, air filters, fans) Research and compile a list of potential funding opportunities from federal, state, and private sources Develop grant proposals and involve community members and local businesses to gather input and support
CR2.2: Embed climate adaptation and resilience in County operations					
►►		Not estimated			<ul style="list-style-type: none"> Embed climate adaptation and resilience across County operations Review plans, policies, programs and operations with a climate adaptation and resilience lens, including current Emergency Management Plan Update plans and policies to include adaptation and resilience strategies Integrate into Project Management and Interdepartmental Review Committee review of buildings and projects to consider energy and water efficiency, EV readiness, and zero waste strategies Improve climate literacy of County staff
CR2.3: Address and prepare for heat and other climate impacts					
►►		Not estimated			<ul style="list-style-type: none"> Address and prepare for heat and other climate impacts in Los Alamos Incorporate extreme heat preparedness and response into the County's emergency management plan or consider developing an emergency heat response plan Implement a neighborhood cooling program, including partnering with local nonprofits and organizations to provide resources and check in on vulnerable residents during extreme heat events Implement County cooling centers for the community in collaboration with community partners Based on the findings from the vulnerability assessment (CR1.1), develop and implement additional adaptation and resilience strategies

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CC1.1: Develop a sustainable business certification					
►►	DPU	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC • LEDA 			<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Collaborate with local businesses and relevant relevant parties to develop and promote a certification program or labeling system that recognizes businesses that adopt sustainability measures such as energy efficiency, waste diversion, sustainable landscaping, and sustainable product sourcing • As part of the certification program development, define sustainability criteria and guidelines • Connect with local business leaders and relevant relevant parties to design the certification program and define sustainability criteria and guidelines • Promote this program in conjunction with Los Alamos County Chamber of Commerce
CC2.1: Facilitate equitable public participation in planning					
►►	CMO	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC • NMED Environmental Justice Small Grants Program 			<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • In addition to providing robust and equitable education to help prepare vulnerable communities for climate impacts (CR1.2), actively seek input from marginalized or vulnerable populations in climate policy-making processes by expanding ESB membership. In Los Alamos, more vulnerable communities may include communities of color, low-income residents, older adults, and non-English speaking residents • Identify vulnerable community members, community leaders, and community organizations to collaborate with • Convene a community leader group to collaborate with the ESB and plan for engaging vulnerable populations in climate planning

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
CC2.2: Monitor and share climate action progress					
►►	CMO	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC 			<ul style="list-style-type: none"> • Consistently monitor CAP implementation progress through an online dashboard or website that provides climate action information and resources to community members, businesses, and relevant parties • Work with consultants and/or staff members to design and launch an online dashboard or website to track and display CAP implementation progress and provide climate action information • Establish a system for regularly updating data on CAP implementation and annual progress updates • Provide annual progress updates to County Council and the ESB • Provide regular updates at County Council meetings on plan progress and provide updates to community
CC2.3: Collaborate with local Pueblos					
►►	CMO	<ul style="list-style-type: none"> • Resilient Communities Fund • BRIC • CDBG • NMED Environmental Justice Small Grants Program 			<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Work with local Pueblos to share resources and ideas on climate change issues, and align with relevant plans such as the Pueblo de San Ildefonso Climate Action Plan • Support the County's efforts to build equitable partnerships with local Pueblos through the Progress through Partnering initiative, regional, or one-on-one projects to increase green workforce training offerings, clean energy access, transit, and public safety and wellbeing • Initiate meetings and discussions with local Pueblos to exchange resources and ideas on climate change issues • Co-develop a plan for partnership and engagement, building off the Progress through Partnering initiative

Mid-Term

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
BE1.1: Establish an energy benchmarking program for commercial buildings					
▶▶▶	Lead: DPU Support: CMO; CDD; partner with Chamber or Housing partners	<ul style="list-style-type: none"> IRA LEDA 	 		<ul style="list-style-type: none"> Identify necessary staff time to devote to program development Establish benchmarking criteria to track building energy and water performance in commercial buildings, including offices, restaurants, hotels, and other business facilities Develop benchmarking criteria through research of similar programs and discussions with relevant parties Identify and compile list of existing incentives Offer education and promote existing incentives Encourage commercial customers to share data to promote energy efficiency improvements Identify and formalize relationships with community partners, such as the Los Alamos Chamber of Commerce, to help develop and promote a program Develop education program, including developing promotional/educational materials and identifying priority businesses and buildings Educate building owners on potential cost benefits of efficiency upgrades where necessary Consult the business energy efficiency program through NM State University as a resource
T1.3: Promote EV readiness					
▶▶▶	CDD	<ul style="list-style-type: none"> NEVI Formula Program IRA Charging and Fueling Infrastructure Grant Program 	Not estimated		<ul style="list-style-type: none"> Identify staff time and capacity needed to implement action Incentivize and educate about EV readiness for new and redeveloped single family homes. Encourage a certain number of EV chargers in multi-family housing, commercial developments, and community gathering spaces, including increased access for affordable housing units Collaborate with relevant parties, including developing and distributing guidelines and resources for contractors and developers to encourage EV readiness and charging infrastructure Determine proportion of EV chargers to units needed per multi-family development and commercial builds

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
T2.4: Encourage multimodal transportation					
▶▶▶	CDD	<ul style="list-style-type: none"> • ATAIN • IIJA 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Provide educational resources for commercial property owners and consider updating land use codes to increase bike storage options, preferred parking for carpools, and shared vehicles to promote multimodal transportation options • Develop and provide educational resources for property owners—which could include flyers, brochures, and webinars—to increase bike storage options, preferred parking for carpools, and shared vehicles to promote multimodal transportation options • Develop outreach campaign plan for providing educational materials and resources to property owners • Consider updating land use codes to increase bike storage options, preferred parking for carpools, and shared vehicles to promote multimodal transportation options • Research peer jurisdiction examples of similar land use codes • Build off of the Development Code's Parking Alternatives and Reductions section, which allows for reducing the parking requirements for commercial properties that have bike storage or repair facilities
MC1.4: Promote C&D recycling and reuse					
▶▶▶	PW	<ul style="list-style-type: none"> • <u>Recycling and Illegal Dumping Grant</u> 	 		<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Provide a construction and demolition (C&D) recycling, salvage, and deconstruction toolkit for construction professionals which includes how-to instructions, contact information for local service providers, and information on low-carbon and recycled building materials • Promote educational resources for building professionals through permit counter brochures, industry events, and industry publications • In the long-term, acknowledging the current limitations of local C&D recycling markets, consider a C&D recycling ordinance which requires that C&D project waste is minimized, reused, or recycled; or evaluate an incentivized approach by offering reduced rates for separating reusable C&D materials • Conduct peer city research on successful C&D recycling programs and ordinances • Facilitate conversations with construction professionals to understand challenges and priorities and how the toolkit could be most helpful • Develop educational resources and toolkit for construction professionals

Timeframe	Lead	Funding	Relative Cost & Impact	Scope	Immediate Next Steps & Other Considerations
MC1.6: Implement the zero waste strategy					
▶▶▶	PW	<ul style="list-style-type: none"> • Recycling and Illegal Dumping Grant 			<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action • Implement all other recommendations outlined in the Zero Waste Strategy (ZWS) to continue to reduce the generation of waste and improve the focus to enhance waste reduction, recycling, and composting • Plan for mid- and long-term strategies and actions outlined in the ZWS • Promote and expand existing recycling services and programs, including evaluating curbside food scrap collection programs and increasing participation in existing programs such as the refrigerant recycling programs • Invest in long-term programs that promote source reduction and alternatives to landfill, such as education and behavior change programs and research • Develop an implementation plan for the zero waste strategy • Evaluate avenues for reducing consumption associated greenhouse gas emissions through sustainable purchasing and consumption/disposal of food, goods, and services • Build necessary partnerships for implementation
NS2.4: Provide greywater reuse education					
▶▶▶	DPU	<ul style="list-style-type: none"> • BIL 			<ul style="list-style-type: none"> • Identify staff time and capacity needed to implement action and identify funding needed for rain barrel purchases • Promote greywater systems for residents, including providing free rain barrels to homeowners to capture and reuse rainwater • Develop new educational programs for the community on the environmental and financial benefits of reusing rainwater and greywater • Continue and investigate expansion of greywater programs and uses, building on the County's current programs • Collaborate with community groups to share educational materials