



**Town Council
WORK SESSION
Tuesday, July 6, 2021
Public Meeting Room / Eagle Town Hall
200 Broadway Eagle, CO**

*This agenda and the meetings can be viewed at www.Townofeagle.org.
Times listed are approximate and are subject to change.*

TOWN COUNCIL WORK SESSION ACCESS INFORMATION AND PUBLIC PARTICIPATION *This will be an in-person work session. Work sessions of the Town Council are not meetings requiring public comment. The public is allowed to attend, however, public comment will not be scheduled and will only be taken at the discretion of the Mayor. The Council shall take no final or official action, vote, nor make any motions.*

WORK SESSION ITEMS - 4:00 PM

1. Introduction - 5 Minutes
2. Mountain Towns 2030 Overview, Luke Cartin, Park City Environmental Sustainability Manager - 30 Minutes
3. Adam Palmer Sustainability Fund Update - 10 Minutes
4. Local Sustainability Initiatives & Success Stories - 5 Minutes
5. Sustainability Philosophy, Principles and Goal Setting Development - 70 Minutes

ADJOURN - 6:00 PM

I hereby certify that the above Notice of Meeting was posted by me in the designated location at least 24 hours prior to said meeting.

Jenny Rakow, CMC
Town Clerk

PUBLIC WIFI - TOEG – townofeagle2019

SUSTAINABILITY

PARK CITY

MOUNTAIN TOWNS

GOALS

net-zero

carbon

+

100%

renewable electricity

2022

city operations

2030

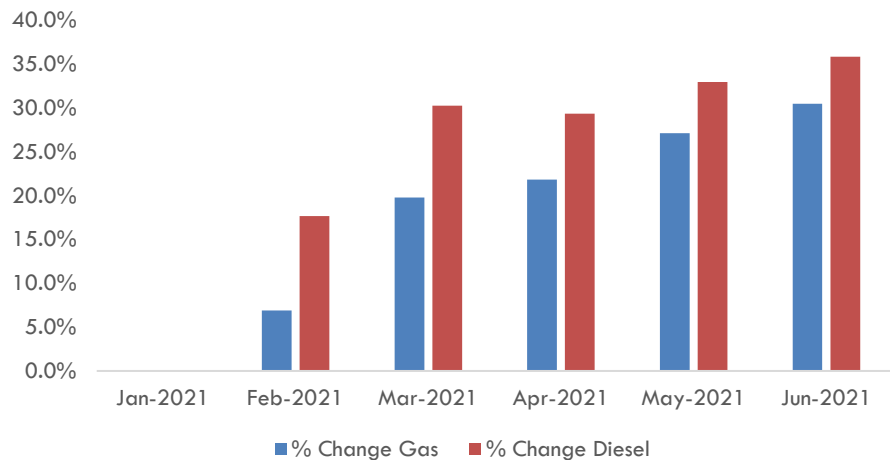
community-wide

Efficient Electrify Renewables Regenerate

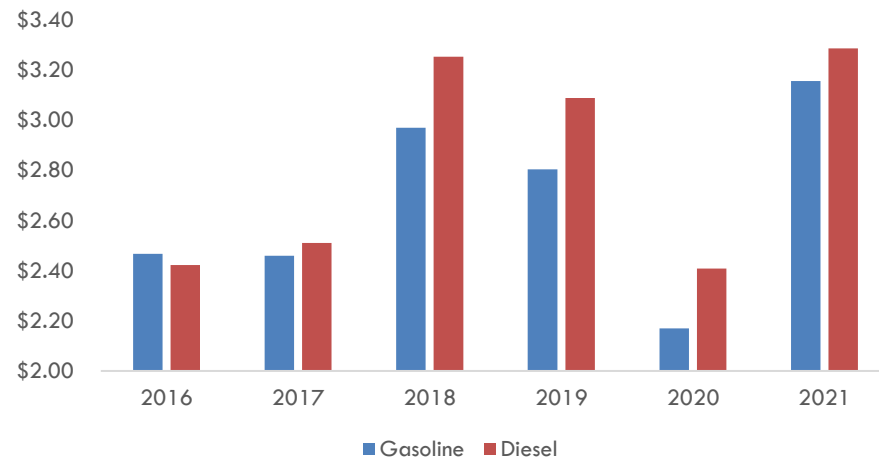




Fuel Price % change compared to January



June Fuel Cost



Henry Hub Natural Gas Spot Price

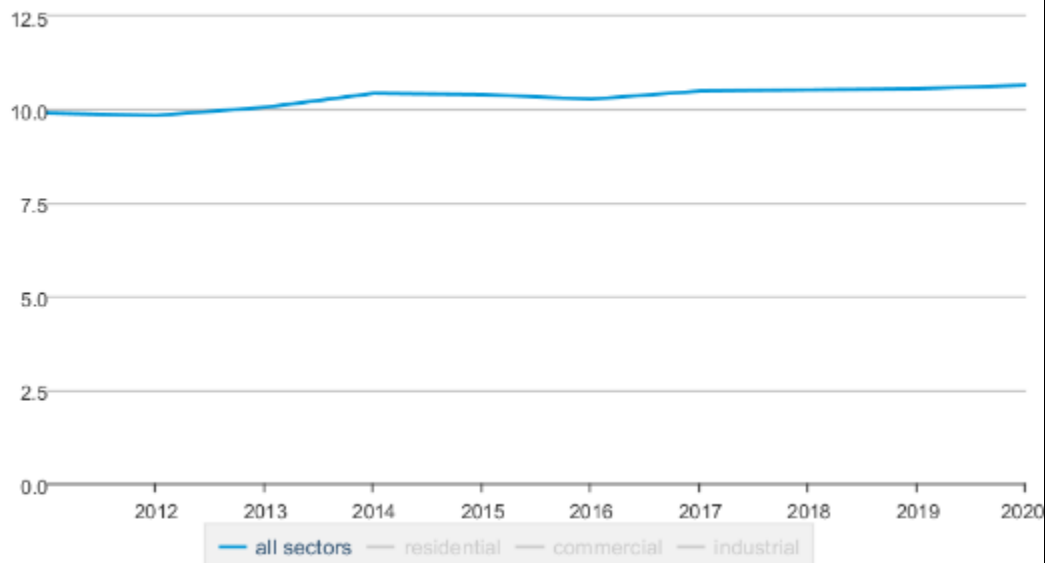
 [DOWNLOAD](#)

Dollars per Million Btu



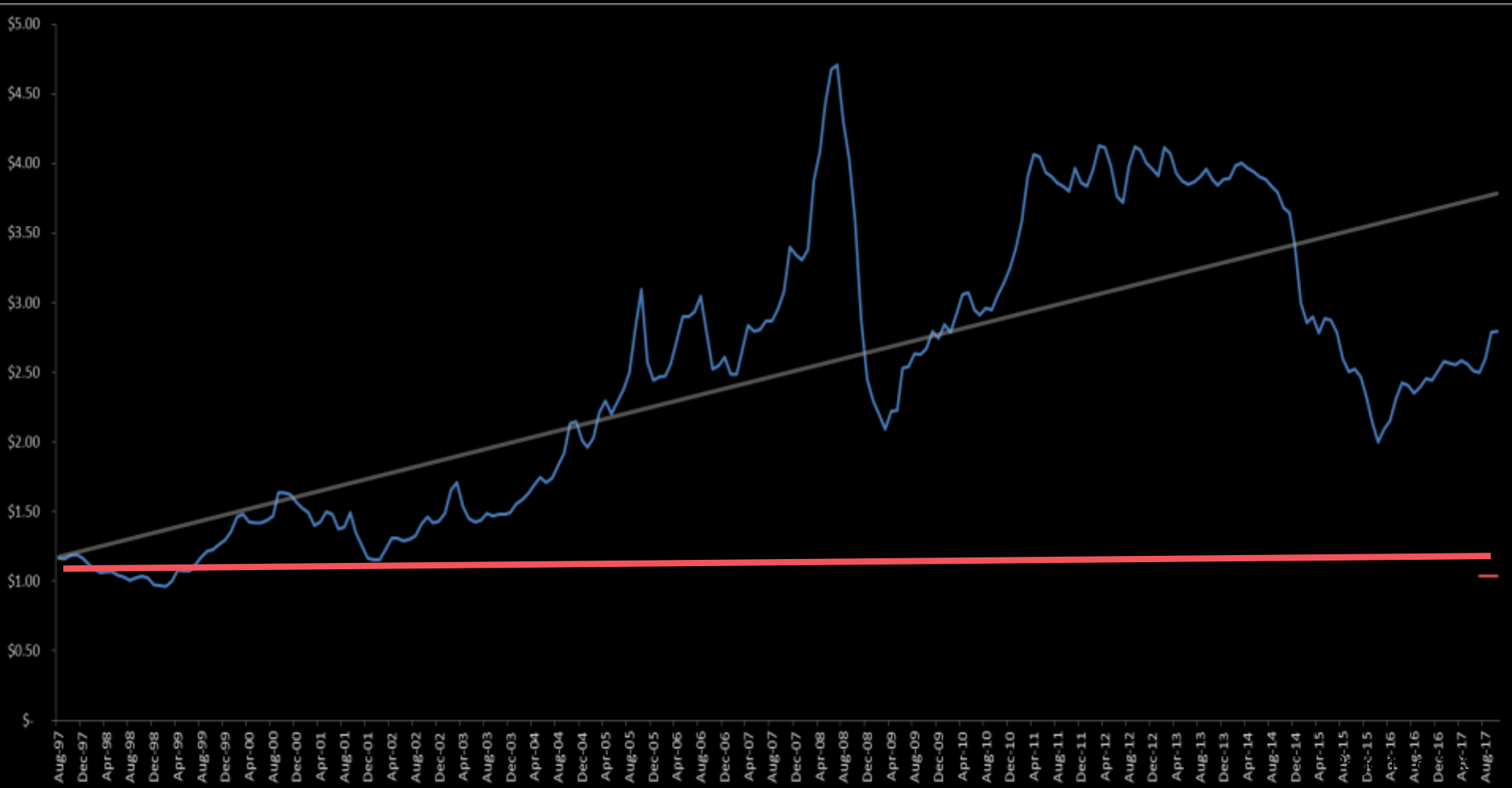
Average retail price of electricity, United States, annual

cents per kilowatthour



Data source: U.S. Energy Information Administration







Elektron

Park City Government

Summit County Government

Salt Lake City Government

Utah Valley University

Vail Resorts

Alterra Resorts

?

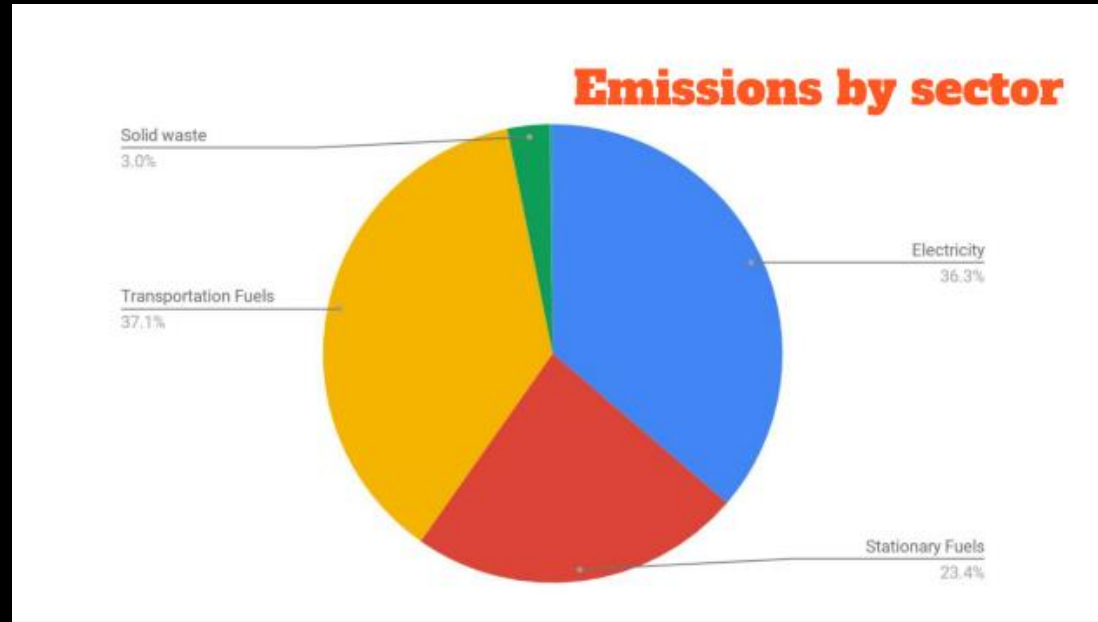
pop quiz

7,051

519,179

8,232,134

COMMUNITY FOOTPRINT



COMMUNITY FOOTPRINT



Efficient Electrify Renewables Regenerate



Efficient



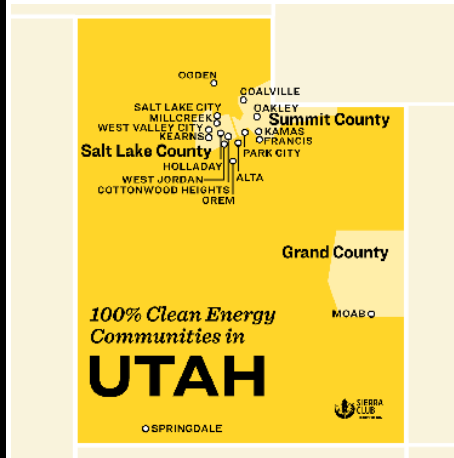
UTAH CSPACE





Electrify

Renewable

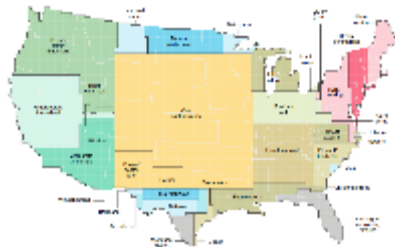
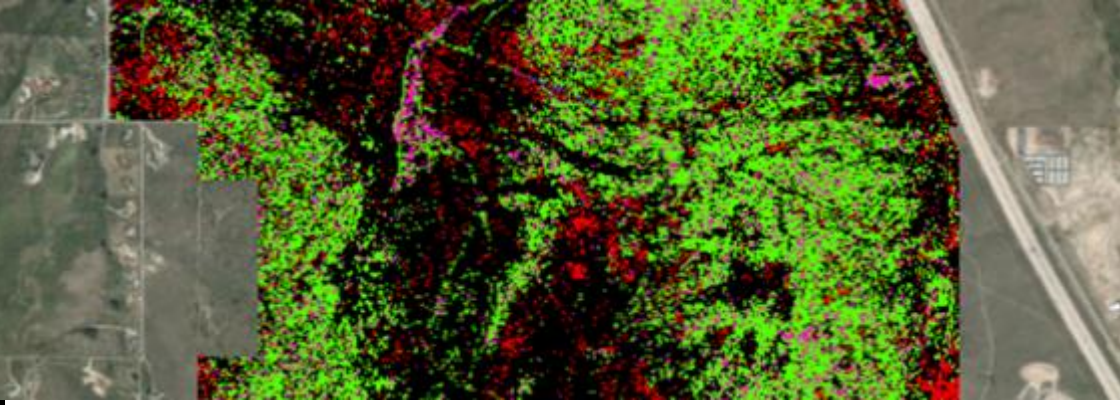


Renewable

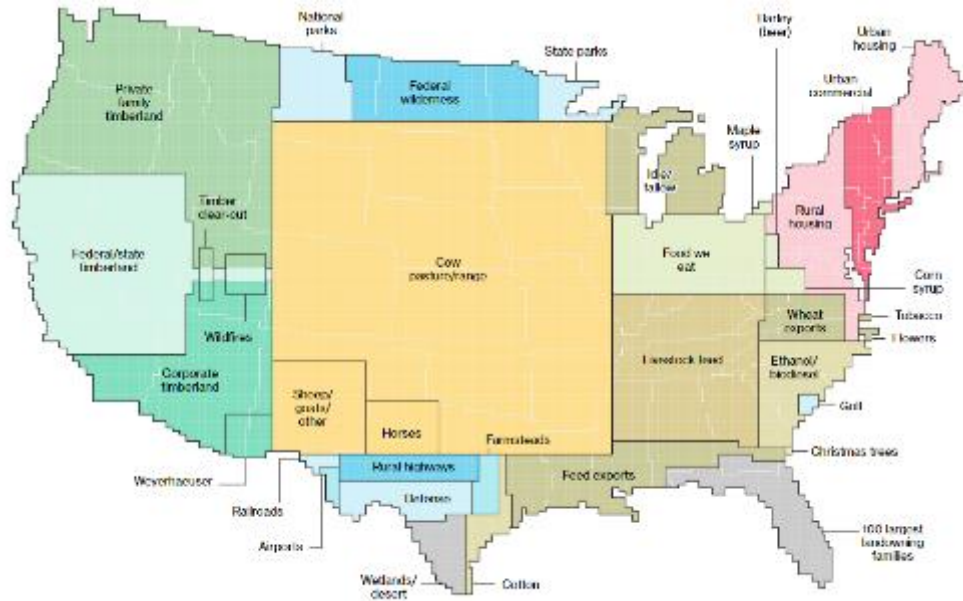


20+ Communities
40% of Utah Population
25% of Utah electricity

Expected impact:
\$2+ Billion in investment
40,000 jobs
Millions in tax base



Regenerate



Regenerate



We empower mountain communities to achieve carbon neutrality by 2030...

And positively influence people and organizations around the world.

The MT2030 Solutions Project

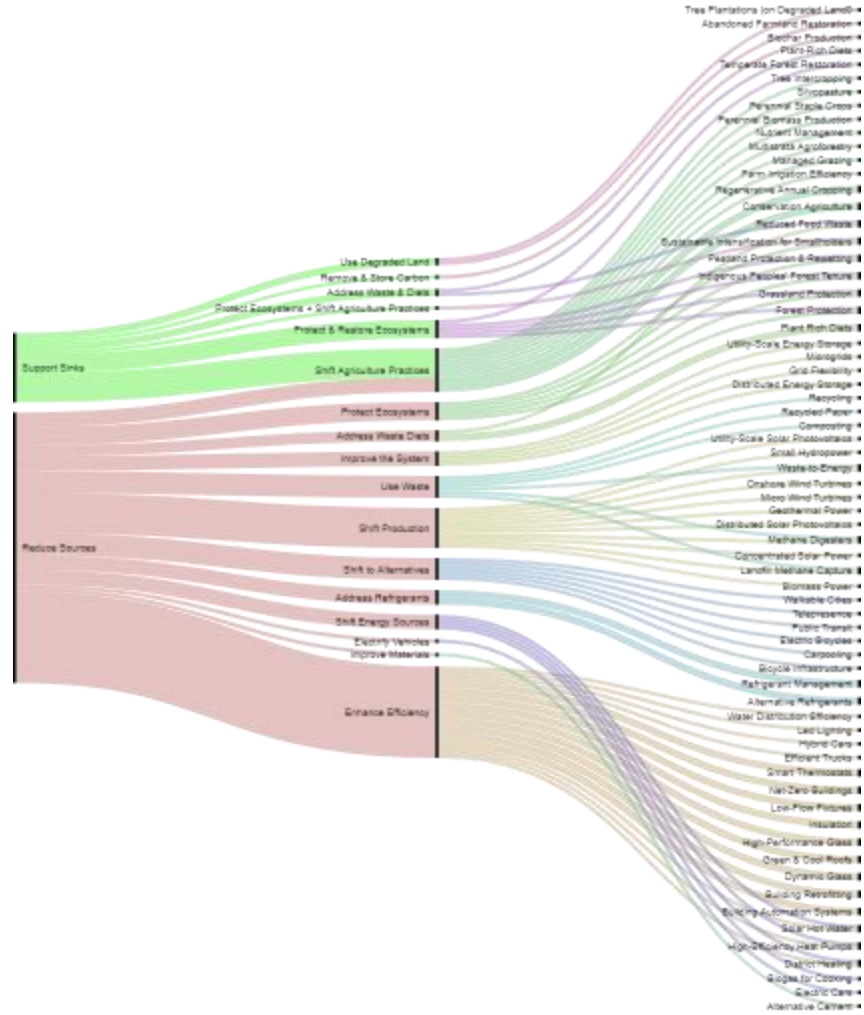
An innovative approach to climate action planning:

An easy-to-understand climate action framework that accelerates information sharing, tools, and collaboration by 2030.

By leveraging existing data and knowledge, and bringing communities together to participate in a collaborative planning process, the Solutions Project connects communities with the tools needed to accelerate their climate action planning.

Sequestration

Carbon Reduction



Summary

be ambitious: no one cares about 2050

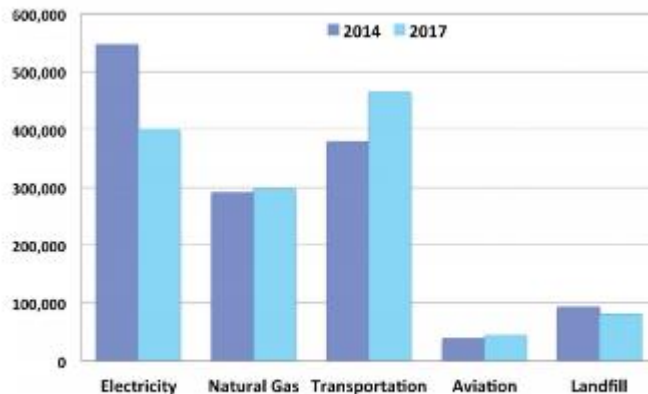
climate action is an opportunity

collaborate

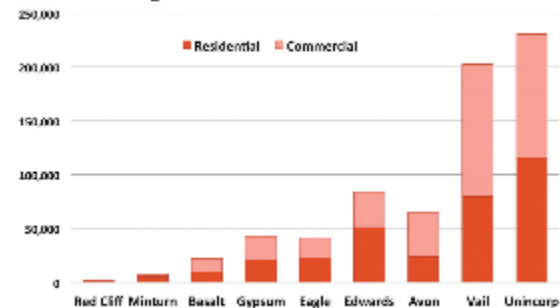
you will solve faster

don't be a nerd

One last thought



0. Emissions by Community by Residential and Commercial Sectors, 2017
Metric tons of CO₂e



Thank you

Luke Cartin

luke.cartin@parkcity.org

luke@mt2030.org



To: Mayor and Town Council

From: Brandy Reitter, Town Manager

Date: July 6, 2021

Agenda Item: Local Sustainability Initiatives and Success Stories

REQUEST:

Staff requests that the Town Council review a list of sustainability initiatives that the Town is working on or are in progress.

INTRODUCTION:

The Town has completed some sustainability projects through partnerships. To assist with the conversation the Town Council is going to have during the work session, staff thought it might be helpful to provide a list of initiatives and success stories. While there are many approaches the Town can take to accomplish sustainability goals, staff has waited to see what direction the Town Council would like to take before making major investments. Currently, sustainability is assigned to one employee who wears multiple hats. Establishing a robust program would require full-time staff resources.

ANALYSIS:

Provided below is a summary of sustainability initiatives:

Ongoing Initiatives:

B3 Benchmarking - Participating with other Climate Action Collaborative partners, we are benchmarking utility use of municipal buildings and receiving guidance on how to improve efficiencies in facilities that are testing beyond normal parameters.

Yearout Energy Audit - We are working with Yearout Energy to conduct a water and energy audit of the Town. This audit will assess our ability to apply for a Performance Bond to finance water meter upgrades and additional investments in infrastructure at a net-zero cost to the Town.

Climate Action Collaborative Meetings - The Town is present for industry sector and stakeholder meetings of the Eagle County Climate Action Collaborative.

Engagement with Local Energy Providers - Above and beyond CAC meetings, Town Staff has had ongoing engagement with Black Hills Energy and Holy Cross to understand and promote their energy efficiency programs where applicable.

Yard Waste Collection - The Town has an ongoing partnership with Vail Honeywagon to collect yard waste in the spring and allow for Eagle residents to get free mulch. This program helps remove organic waste from the landfill and creates a productive landscaping element.

Growing Water Smart - The Town has participated in Water Efficiency workshops with the Sonoran Institute to learn better water utility management practices and increase utility delivery efficiency. As participants in the program, we have additional funding and technical assistance programs available to the Town for related projects.

In Development Programs:

Work from Home Month Promotion - The Town of Eagle is planning a promotion to raise awareness of the beneficial climate impact of working from home. This project is in conjunction with the CAC and Walking Mountains, the Vail Valley Partnership, and local businesses.

Rural Energy Savings Program - The Town has had discussions with local agencies about implementing a Rural Energy Savings Program. This is a program from the USDA to establish a revolving loan fund for energy-efficient improvements for residents and businesses.

Residential Composting - The Town has had discussions with Vail Honeywagon to expand the residential composting program. Enacting this program would require a fee adjustment and approval from Council.

COMMUNITY INPUT:

Community input is not required with this proposal.

BUDGET / STAFF IMPACT:

There is no budget impact with this proposal.

STRATEGIC PLAN ALIGNMENT/STANDARDS ACHIEVED:

These initiatives do align with the Strategic Plan. Sustainability includes several categories and through partnerships, the Town is making progress on energy, water, waste, and data collection.

RECOMMENDED ACTION OR PROPOSED MOTION:

No action is required.

ATTACHMENTS:

- None

The background is a full-page photograph of a golf course. In the foreground, a wooden post-and-rail fence runs across the frame. Beyond the fence is a lush green fairway. In the middle ground, two golfers are visible: one in a blue shirt and dark shorts is in the center, and another in a blue shirt and light shorts is on the right. Several red and yellow flagsticks are planted in the grass. To the left, a sand trap is visible. In the background, a large, multi-story clubhouse with a dark roof and light-colored walls sits on a grassy slope. Behind the clubhouse is a steep, densely forested hill under a clear sky.

TOWN OF EAGLE STRATEGIC PLAN

Adopted August, 2020

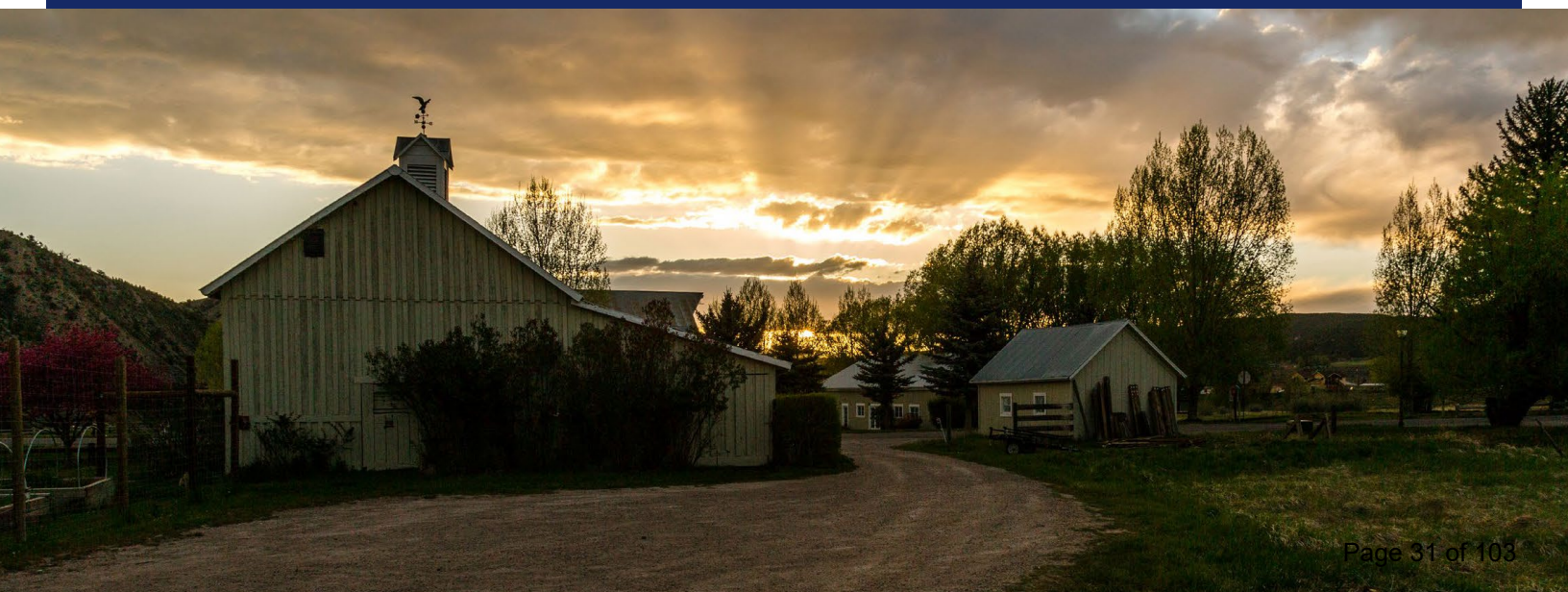
ABOUT THE TOWN OF EAGLE

The Community - Located on the western slope of the Rockies, halfway between Denver and Grand Junction, the Town of Eagle has a population of approximately 6,600 and is one of Colorado's best kept secrets. Eagle offers access to epic mountain biking, trail running and hiking, golf, kayaking, snowmobiling, hunting, and gold-medal fly fishing. In addition to a variety of public parks, there are over 1,000 acres of town owned public open space. Located a short drive from Vail and Beaver Creek, residents also enjoy world-class amenities provided by these resorts. The Eagle County Regional Airport is located just five miles west of Town and serves both commercial and private aviation. Eagle is a thriving community and is a great place to live, work, and visit.

Eagle, the county seat, is a traditional town with a main street lined with shops and cafes. Eagle boasts a variety of great neighborhoods, excellent parks, over 100 miles of single-track trails, concerts in the park, an Arnold Palmer golf course, a county-fair venue, and a variety of restaurants. The community has an authentic western flavor and friendly vibe, attracting top notch events and outdoor adventurers. Its population includes a variety of age groups and income levels. Eagle enjoys a mountain climate with warm dry summers and moderate winters. Average temperatures range from 35 degrees in January and highs up to 85 in July. Typical snowfall is 10-12 inches per month in December through April, yet Eagle boasts over 290 days of sunshine per year.

The Town's Organization - Established in 1887, incorporated in 1905, the Town of Eagle became the County seat in 1921 and adopted a home rule charter in 2020. The Town is a council-manager form of government led by a 7-member Town Council elected for four-year terms. The Town Council appoints the Town Manager, Town Attorney, and Municipal Court Judge. The Town has a staff of approximately 50 dedicated employees with an average longevity of 10 years. Eagle provides a full range of services including police protection, water and wastewater services, street and parks maintenance, community and economic development, and events planning. Fire service is provided by the Greater Eagle Fire Protection District.

The mayor, Town council members, and employees are committed to maintaining and enhancing the quality of life for everyone in the community. The following Strategic Plan reaffirms the values of the Town and outlines the major objectives designed to guide Eagle's future.



PURPOSE OF THE TOWN'S STRATEGIC PLAN

This Strategic Plan has been updated for the community of Eagle by the Town Council and staff during an annual retreat. It establishes a common language and proposes strategies designed to ensure a bright future for Eagle. Specifically, this Plan creates the following outcomes:

- Establishes a 5-year planning horizon, and provides the basis for an ongoing dialogue between the staff, Council, and the community regarding the direction of the Town and specific objectives
- Considers the major challenges and opportunities likely to arise during the planning horizon and proposes specific objectives to address these challenges
- Increases confidence among Eagle's Town Council, community leaders, and residents that the Town is appropriately addressing, opportunities, future risks, and needed investments
- Ensures that proposed strategies and activities are consistent with the Town's mission and values, especially the commitment to enhance quality of life
- Provides sufficient information to allow the Town's staff to develop more specific actions and tasks, and ultimately fulfill Eagle's Vision for the future

It is important to emphasize that this Strategic Plan does not approve or communicate final policy decisions on specific issues or objectives. Rather, it provides a framework for an ongoing dialogue about maintaining and enhancing the quality of life in Eagle. Each of the Major Objectives in this Plan will require additional collaboration by the Town's staff, advice from experts, and input from the community before the Town Council makes final policy or investment decisions. The Town will provide ample opportunities for citizens to be engaged as specific issues are addressed.



ELEMENTS OF THE STRATEGIC PLAN



FOUNDATION

The Town's Vision, Mission and Values establish a foundation for meeting the needs of the community, and defining how the staff of the Town will conduct business.



GUIDING PRINCIPLES

The Town's Guiding Principles describe specific commitments to protect the interests of the residents and businesses in Eagle. These Principles provide the framework for identifying more explicit standards and for engaging with the community on important issues.



MAJOR OBJECTIVES

The Major Objectives outlined in this plan identify significant challenges, opportunities, or investments likely to arise during the planning horizon. In general, these objectives do not address tasks associated with normal daily operations. The information provided in each objective is designed to provide a foundation for future collaborations between the Town Council, staff, community leaders, and the residents of Eagle. These collaborations will likely result in one or more policy decisions by the Town Council to address the stated problem or opportunity.

The Implementation Plan is a separate document, created by staff and approved by the Town Council that captures the strategies and tactics used to accomplish the Major Objectives. The Implementation Plan is consistently updated and the results are captured and reported back to the Town Council. Each implementation step has been linked to the Major Objectives and the Guiding Principles as well as to the Mission and Vision of the Town of Eagle.

FOUNDATION

VISION

The Town of Eagle is a vibrant mountain community that is diverse, inclusive, and unique.

MISSION

Maintain and enhance the quality of life for everyone in our community.

VALUES

We are guided in our daily decisions and activities by these values:

Integrity

We are open, honest, and ethical in all our communications and actions.

Respect

We thoughtfully consider each other's differences and opinions.

Commitment

We give our individual best to get the job done right.

Responsibility

We are accountable for our behaviors, action, and use of public resources.

Collaboration

We listen and openly share our ideas to achieve better decisions and outcomes.

Leadership

We are proactive in advancing the interests of our communities.



GUIDING PRINCIPLES

Guiding Principles describe the Town's commitments to advance the interests of Eagle's residents and businesses. The Town's Guiding Principles establish a framework for developing more detailed standards, assessing risks, identifying issues, and evaluating and implementing solutions. These Guiding Principles also enable the Town to clearly communicate the value of its activities and proposed investments. In addition to the Mission Statement, the Town's commitments to provide value are as follows:



**Proactive Economic
Development**



**Progressive Community
Based Law Enforcement**



**Protecting Public
Health, Safety, and the
Environment**



**Reliable and Cost
Effective Services**



**Sound Planning and
Appropriate Investment**



**Sustainable Finances and
Increasing Efficiency**



**Transparency and
Community Engagement**

The following narrative provides more information on the Town's Guiding Principles and articulates some of the Town's specific standards

Appropriate Investment

Providing reliable services requires funding that covers today's financial needs and supports investments in the Town's vision for the future. The Town must also invest in a highly effective, motivated, and well-trained workforce.

Proactive Economic Development

Eagle's economy is the engine for quality of life. Eagle is fortunate to have a variety of natural and developed assets, including its location on Interstate 70, proximity to world class ski resorts and the regional airport, and access to multiple outdoor activities, including hiking, mountain biking, fishing, river rafting, kayaking, snowmobiling, and hunting.

Progressive Community Based Law Enforcement

The Town of Eagle Police Department is defined by transparency, community building, and adaptability. Utilizing a community policing approach as its baseline, the department is committed to evolving thoughtfully to respond to the needs of Eagle and its visitors with a progressive, and sometimes non-traditional approach to law enforcement.

Protecting Public Health, Safety, and the Environment

The Town is committed to protecting the well-being of the community. This means supporting dynamic and diverse neighborhoods, and maintaining a strong framework for business opportunities, being good stewards of the environment.

Reliable and Cost-Effective Services

A key responsibility for the Town is to provide essential services, whether it be reliable water and sewer services, trash and recycling services, or support with respect to permitting, zoning, planning, and other basic needs. Meeting the needs of customers also requires that the Town adopt standards of service that make it easy for people to do business with the Town.

Sound Planning

The foundation for providing reliable services and quality of life is planning. The Town focuses on adequate resources, reliable infrastructure, compliance with regulations, and a local economy that supports a high quality of life for Eagle residents.

Sustainable Finances and Increasing Efficiency

The Town's financial capabilities and standards ensure that it has the financial strength and resources to provide the reliable and high-quality services that residents expect. The Town's finances must be resilient to economic downturns, cover the full cost of operations, provide adequate funding to maintain financial reserves, and support capital investment.

Transparency and Community Engagement:

By providing easy access to information and timely responses to customer inquiries, the Town creates an environment that fosters public trust and allows Eagle's residents and business owners to understand the Town's values, priorities and strategic plans. The Town is committed to maintaining an ongoing, meaningful, and substantive dialogue with the community that is based on clearly defined standards and compelling arguments for proposed policies and investments.



MAJOR OBJECTIVES

Eagle's Strategic Plan employs several criteria for assessing future challenges and opportunities. These criteria include the following:

- Ensuring that the Town is adhering to its mission statement and aggressively pursuing its vision
- Continuing to enhance the Town's workforce and performance
- Anticipating and planning for changes in regulations or legal requirements
- Responding to economic trends and evolving needs of Eagle's residents and businesses

Based on the criteria above, the Town has developed a series of Major Objectives. The following Major Objectives describe the most significant areas, challenges, and opportunities likely to come before Eagle's Town Council within a 5-year planning horizon. As stated above, they do not represent final decisions by the staff or Town Council, rather they provide enough detail for the Town's staff to develop specific action steps, continue clarifying the issues, collaborate with experts, and inform the public. Each Major Objective adheres to Guiding Principles and is designed to align with the Town's vision and mission statement, which is to maintain and enhance the quality of life for everyone in Eagle. These objectives and associated activities may have implications well beyond the planning horizon, consistent with the need to have a long-term view. The following Major Objectives address these fundamental realities in an integrated manner. They are listed in alphabetical order, as they are all equally important to the community.

MAJOR OBJECTIVES



STIMULATE ECONOMIC VITALITY AND DEVELOPMENT

The Town focuses on development that follows the Elevate Eagle Comprehensive Plan to ensure results that maximize the economic benefits. The economic impact of visitors and business investments result in positive benefits in terms of amenities, job creation, increases in wages, infrastructure and the overall quality of life.



IMPROVE COMMUNITY RESPONSIVE SERVICES

The Town is adopting policies and regulations to be responsive to changes in the business environment, which will encourage thoughtful growth and development. Community interaction and engagement will inform decision making by the Town Council.



MATCH INFRASTRUCTURE TO QUALITY OF LIFE

The Town is investing in and implementing infrastructure improvements that increase the high quality of life and vibrant economy without creating an undue burden on the residents of the Town.



ATTRACT VISITORS

The Town is capitalizing on the unique heritage and outdoor amenities to attract visitors to Eagle. Proximity to I 70 and regional airports along with special events will encourage a wide and diverse range of tourists, bringing an investment which will improve the economy and quality of life for everyone.



FOCUS ON RECREATION, EVENTS AND OPEN SPACE

The Town of Eagle is a destination for outdoor recreation, and residents and visitors participate in a wide range of opportunities and activities. Open space and community buffers will continue to promote a high quality of life and the unique location that is a strong value for the community.



STRENGTHEN TOWN ORGANIZATION AND CULTURE

The Town staff is highly competent, empowered, motivated and collaborative and enjoy working with and for the Town of Eagle. The Town develops this potential by creating a work culture that is inclusive, respects employees, and values contributions at all levels. Training, benefits and pay are competitive and result in attraction and retention of a high quality workforce.



ENHANCE THE ECONOMIC RESILIENCY OF THE TOWN GOVERNMENT

The Town is fiscally responsible, and revenues received are balanced against current and future needs of the community. Diversified sources of revenue are allocated to provide a high quality of life while ensuring ongoing maintenance and operation of current amenities.



INVEST IN ENVIRONMENTAL AND ENERGY SUSTAINABILITY

The Town is focused on environmental impacts of decision making and will ensure that projects and policies reflect a focus on improving and sustaining natural resources for future generations.



DIVERSIFY THE ATTAINABLE HOUSING STOCK

The Town creates opportunities for a diversified, attainable housing stock for a variety of rental and purchase options.

STRATEGIC GOALS



Stimulate Economic Vitality and Development

- Support a Business Improvement District or similar approach
- Continue to create opportunities on Highway 6
- Develop a comprehensive strategy for economic vitality



Improve Community Responsive Services

- Revise the existing code
- Review policies and identify areas to simplify for administrative approval
- Adopt zoning or overlay districts that are designed to achieve this outcome



Match Infrastructure to Quality of Life

- Develop and implement broadband solutions
- Implement a system for reporting maintenance issues
- Evaluate impact fees throughout the Town
- Adopt a multi-modal transportation plan



Attract Visitors

- Develop the Eagle Brand
- Fund a Wayfinding, Gateway and Entry Signage Plan
- Collaborate with regional tourism & marketing efforts



Focus on Recreation, Events and Open Space

- Adopt a Capital Improvement Plan for open space & parks
- Identify a sustainable revenue source for open space
- Support culturally diverse events in the community



Strengthen Town Organization and Culture

- Build capacity of existing staff through strategic investments
- Establish and fund competitive salary and benefits plan
- Invest in technology and systems to improve performance



Enhance the Economic Resiliency of the Town Government

- Adopt policies to ensure value of real property in Town
- Identify partners for revenue sharing
- Identify and implement diverse revenue streams



Invest in Environmental and Energy Sustainability

- Research the feasibility of a new electric utility
- Set goals for energy reduction for Town or community
- Adopt a philosophy and principles for sustainability



Diversify the Attainable Housing Stock

- Develop a strategy for housing
- Collaborate on solutions in the West Eagle Area
- Revise the inclusionary zoning standards to be more specific



CONCLUDING REMARKS

The execution of this plan will begin by assigning the Town staff to research each of the Major Objectives and create specific action steps and implementation items. The staff will return to the Town Council to offer recommendations, present updates, and continue to discuss the Strategic Plan. The financial implications of implementing the Major Objectives will be reflected in specific policy proposals, discussions with the community during outreach efforts, and included in the Town's operating and capital budgets. In addition, as important policy issues come before the Town Council, the supporting information provided by the staff will reference the relevant Major Objective from this Strategic Plan.

The Town is committed to ensuring that the implementation of this plan reflects the mission, vision, and values of the Town as defined by the staff, the Town Council, community leaders, and members of the public who choose to provide input. If at any time the Town's staff or Town Council feel that this Plan is at odds with prevailing sentiments in the community, then the Plan will be altered accordingly. The Town anticipates this Plan will be subjected to a formal update in 2-3 years. This will not be a re-creation of the plan, but an update that reflects progress, new insights, and feedback received during outreach efforts.

For more information about this plan, please visit the Town of Eagle website at www.townofeagle.org or contact the Town Manager at

 **PO Box 609
200 Broadway
Eagle, CO 81631**

 **970-328-6354**

 **970-328-5203**



CLIMATE ACTION PLAN



FOR THE
EAGLE COUNTY
COMMUNITY

December 2016

OUR MOUNTAIN COMMUNITY IS AT RISK

› Winters are getting warmer and shorter

- There are now 23 fewer days with freezing temperatures than before the 1980s
- Scientists predict we'll have 30 more days without freezing temperatures by 2060
- Spring snow packs are declining and less predictable

› Summers are getting hotter

- The last 15 months have been the hottest on record globally
- Warmer average summer temperatures are on the rise
- With every 1.0°F increase in temperature, we'll see a 3-4% decrease in water supply

› Mountain ecosystems are changing

- Increasing insect pests are changing our forests
- Scientists predict more extreme events – wildfires, droughts, and floods
- Wildlife is on the move, adapting to changes in habitat
- Rising temperatures lead to declining runoff in creeks and rivers

 *The Eagle County Community is Ready to Take Climate Action*

TABLE OF CONTENTS

Acknowledgments	Page 1
Introduction	Page 2
Why Climate Action? Why Now?	Page 6
Targets for Greenhouse Gas Emission Reductions	Page 13
Recommended GHG Reduction Goals by Sector	Page 14
• Education and Outreach	
• Residential Buildings	
• Commercial Buildings	
• Transportation and Mobility	
• Waste and Landfill	
• Energy Supply	
Recommendations for Decision Makers	Page 21
What Does Success Looks Like?	Page 22
Considerations for Implementation	Page 23
Appendix A - Project Ideas and Recommendations	Page 24
Appendix B - Stakeholder Meetings and Public Engagement Information	Page 34
Appendix C - 2014 Eagle County Energy Inventory	Page 35
Appendix D - Glossary of Key Terms	Page 40
Appendix E - Literature Cited	Page 40

PROTECTING COMMUNITY VALUES

Our Community Health and Well-Being

We can help prevent community health threats like increasing insect-borne diseases, increasing allergies, smoke waves from wildfires, and other forms of air and water pollution.

Our Environment and Recreation

We can protect the places we play, reduce the risk of catastrophic fires in our forests, and reduce flooding in our streams and rivers.

Our Economy and New Jobs

Investing in energy efficiency, solar arrays, electric and hybrid vehicles, smart growth, and creating new green jobs will position us as leaders in the coming 'post-carbon economy'.

ACKNOWLEDGMENTS

Stakeholders

Terry Armistad, Town of Minturn
Jared Barnes, Eagle County
Kristen Bertuglia, Town of Vail
Tom Boyd, Vail Valley Foundation
Fritz Bratschie, Vail Resorts
Shawn Bruckman, Ground Up
Mikayla Curtis, Eagle River Youth Coalition
Deron Dirksen, Town of Eagle
Matt Donovan, Vail Honeywagon
Lana Gallegos, Town of Gypsum
Mac Garnsey, Vail Valley Foundation
John Gitchell, Eagle County
Chris Hildred, Holy Cross Energy
Patrick Hirn, Eagle County Schools
Melissa Kirr, Walking Mountains Science Center
Stephanie Lewis, Vail Mountain School
John-Ryan Lockman, Energy Smart CO at Walking Mountains
Chris Lubbers, Eagle County
Nikki Maline, Energy Smart CO at Walking Mountains
Jesse Masten, Eagle County
Anne McKibbin, Town of Eagle
Roberto Morales, Vail Valley Medical Center
Adam Palmer, Eagle County
Glenn Phelps, Eagle River Water & Sanitation District
Susan Philp, Town of Basalt
Mercedes Quesada-Embid, Ph.D., Colorado Mountain College
Brian Rodine, Vail Resorts
Clete Saunier, Eagle County
Derek Schmidt, East West Destination Hospitality
Sarah Smith-Hymes, Town of Avon
Harry Taylor, Eagle County
Brian Tracy, Eagle River Water & Sanitation District
Mary Wiener, Holy Cross Energy
John Widerman, Town of Minturn

Technical Presentations / Consultants

Abel Chávez, Ph.D., Western State Colorado University
Peter Krahenbuhl, Natural Capitalism Solutions
Chris Menges, City of Aspen
Erica Sparhawk, Clean Energy Economy for the Region

Preparers

Kim Langmaid, Ph.D., Walking Mountains Science Center
Kelsey Maloney, Walking Mountains Science Center
Larissa Read, Common Ground Environmental Consulting, LLC
Scott Robinson, Walking Mountains Science Center

Special thanks to the Eagle County Board of County Commissioners for their support and leadership on climate action:

Jeanne McQueeney, Chair
Kathy Chandler-Henry, Commissioner
Jillian H. Ryan, Commissioner

This planning effort was supported by funding from the Eagle County Government and coordinated by staff at Walking Mountains Science Center.

walking mountains[®]
science center

walkingmountains.org | 970.827.9725





INTRODUCTION

Climate change is disrupting the basic operating system of our planet. Mountain regions are particularly vulnerable due to their hydrology, ecology, and recreational economies. In the past 30 years, the annual average temperature in Colorado has increased by 2.0°F (Lukas et al., 2014), and Eagle County's natural environment is feeling the effects. The timing of snowmelt and peak runoff has shifted earlier in the spring, and there are more frost-free days (days with minimum temperatures above freezing) than there were before the 1980s. These fewer days of freezing temperatures impact the water storage in our snow pack, alter the timing and amount of river runoff, hamper the ability to make snow for skiing, debilitate the health of our forests and wildlife, increase the threat of forest fires and flooding, and subsequently, put at risk the very basis of our recreational economy and daily lifestyles.

Local climate change takes place within the context of global climate change and greenhouse gas (GHG) emissions. Carbon dioxide (CO₂), a potent GHG, has increased by 40% from 280 parts per million (ppm) in the pre-industrial era to 400 ppm today, a level that the earth has not seen in at least 800,000 years, due primarily to the burning of fossil fuels (Lukas et al., 2014). Each of us has a responsibility to take action to reduce GHG emissions and prevent increasing negative impacts of climate change. We can be proactive and embrace the challenge of climate change. We can learn to change; we can take action and innovate; and, we can each do our part to ensure a sustainable future for our Eagle County community.

Each of us has
a responsibility
to take action
to reduce
GHG emissions
and prevent
increasing
negative
impacts of
climate change.

This *Climate Action Plan for the Eagle County Community* is the culmination of a year-long effort that included more than 30 community stakeholders. Their tasks were to develop targets for the reduction of GHG emissions for the entire community within Eagle County and to identify and prioritize projects and policies by sector that will help the community achieve those targets. The plan calls for aspirational, yet achievable, targets for overall GHG emission reductions: 25% by 2025, and a minimum of 80% by 2050. The 2050 target is in alignment with the recent recommendation of the Intergovernmental Panel on Climate Change (IPCC, 2014). In order to meet the established targets, this plan also contains project recommendations for the community, including the county government, towns, businesses, nonprofits, and other partners to begin immediate climate action, as well as plan for the future.

Recommended GHG emissions

reduction
targets:

25% by 2025,
minimum of
80% by 2050.



Stakeholders hard at work discussing solutions.

The stakeholders met regularly from March to November 2016, and each meeting included educational components, as well as activities to engage and solicit stakeholder feedback on critical elements of the plan. The stakeholders represented a diverse and engaged group of community leaders, county and municipal government employees, and representatives from key industries in the community. Guest speakers added technical expertise and an outside perspective to the process. Collectively, the plan reflects the strong values of the Eagle County community including our health and well-being, our natural environment and recreational economy, and our potential as leaders in creating a robust

post-carbon economy. Highlights of the plan were shared at three public open house meetings during September 2016. A survey was available at the open house sessions and on the Walking Mountains Science Center website to solicit feedback and public comments. The stakeholders recommended the final plan for adoption by the Board of Eagle County Commissioners and other elected officials in December 2016.

SUMMARY OF RECOMMENDATIONS FOR CLIMATE ACTION



Education and Outreach

- Establish climate education team
- Create county-wide marketing campaign
- Enhance Eco-Schools for K-12 schools
- Expand Actively Green business trainings and certifications
- Leverage special event platforms to change behaviors



Commercial Buildings Sector

- Reduce GHG emissions 25% by 2025
- Focus on energy efficiency
- Provide incentives
- Adopt “above building code” standards
- Promote and incentivize efficient use of water



Waste and Landfill Sector

- Set a waste diversion goal that is above the national average
- Develop a plan to increase waste diversion through recycling and composting
- Install waste-to-energy methane capture system at landfill
- Provide residential and commercial composting services



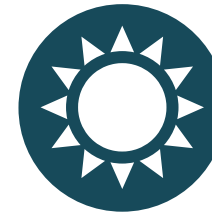
Residential Building Sector

- Reduce GHG emissions 25% by 2025
- Focus on energy efficiency
- Expand Energy Smart Colorado program and incentives
- Adopt “above building code” standards
- Promote and incentivize efficient use of water



Transportation and Mobility Sector

- Reduce local GHG emissions 10% by 2025
- Include local commuter train or bus rapid transit
- Expand use of electric vehicles
- Encourage multi-modal transportation systems
- Strive for efficient land use patterns with housing in proximity to workplaces



Energy Supply Sector

- Expand local exterior energy offset programs (Eco-Build example)
- Identify locations for local solar arrays
- Encourage energy utilities to set aggressive GHG emission reduction goals



As the impacts of climate change become evident around the world and international efforts to curb GHG emissions are more prevalent, many local communities have begun serious climate action planning to be part of the solution. The Eagle County Board of County Commissioners made “climate action planning” a priority in the County’s 2016 strategic plan, and Walking Mountains Science Center’s Sustainability and Stewardship Programs Department was contracted to convene and facilitate a stakeholder and community-driven climate action plan.

The resulting *Climate Action Plan for the Eagle County Community* reflects a strong commitment to reduce the community’s GHG emissions by a minimum of 80% by 2050, an amount in alignment with that of the Intergovernmental Panel on Climate Change (IPCC, 2014). Local, regional, and state efforts have become the cornerstone of climate action because national and international energy policy and emissions reduction efforts are slowed and often stifled by policy, politics, and bureaucratic processes. Furthermore, local governments and communities are often in a better position to engage citizens and have an immediate and direct impact toward reducing GHG emissions.

This climate action plan is specifically focused on mitigation. Climate *mitigation* is defined as efforts that reduce or prevent GHG emissions. Climate *adaptation* is defined as efforts that help the community prepare for and adjust to the current and future impacts of climate change. Although this plan does not specifically address climate adaptation, other efforts are being taken throughout the Eagle County community to prepare for the changing climate. The stakeholders believe that future climate action planning initiatives should integrate both mitigation and adaptation.

This *Climate Action Plan for the Eagle County Community* includes a vision for success—what success looks like, and how it can be achieved. The actions recommended in the plan are broken into six sectors: 1) education and outreach, 2) residential buildings, 3) commercial buildings and industrial operations, 4) transportation and mobility, 5) waste and landfill, and 6) energy supply. Detailed actions and projects have been identified by the stakeholders to support GHG emission reductions in each of the sectors.

The plan also includes recommendations for decision makers at all levels within the community, ranging from needed policy changes to on-the-ground activities. Broader public comment on the plan was solicited during September 2016 at three open house sessions, and the community's ideas were incorporated into the final plan. This final plan has been approved by the stakeholders with a strong recommendation for adoption by all local governments, including special districts, businesses, nonprofits, educational institutions, and neighborhood associations, the goal is that GHG reduction targets are consistent with the ability of each entity to select the strategies and actions that are most appropriate for their situations.

The plan includes a vision for success – what success looks like, and how it can be achieved.

WHY CLIMATE ACTION? WHY NOW?



We live in a county that is heavily dependent upon climatic conditions. As the climate warms, we enter an era of uncertainty. Imagine our ski and snowboard season starting a month later and ending a month earlier than it does now. Imagine hotter summers affecting our daily activities and our recreational opportunities. Imagine Western Slope ranchers and farmers facing severe droughts without enough water for crops and livestock

Scientific research indicates there will be increasing changes to the flows of our streams and rivers. There will be earlier snowmelt in the mountains and an increase in wildfire on our surrounding open lands. There is also evidence of future changes to our daily health and well-being due to increases in insect-borne diseases like West Nile virus, Lyme disease, and the length and intensity of allergy season.

Due to these local effects of climate change, communities across the state of Colorado and the U.S. are creating their own climate action plans and making significant commitments to reduce GHG emissions.

“Reducing greenhouse gases requires honesty, courage, & responsibility... There is a nobility in the duty to care for creation through daily actions.”

~Pope Francis

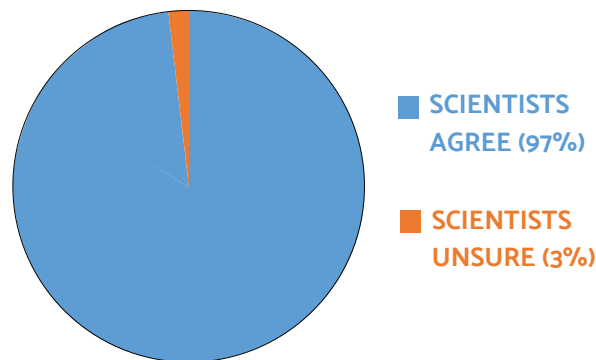


“Scientific evidence for warming of the climate system is unequivocal.” Intergovernmental Panel on Climate Change (IPCC, 2014)

“Earth-orbiting satellites and other technological advances have enabled scientists to see the big picture, collecting many different types of information about our planet and its climate on a global scale. This body of data, collected over many years, reveals the signals of a changing climate. The heat-trapping nature of CO₂ and other gases was demonstrated in the mid-19th century. There is no question that increased levels of greenhouse gases must cause the earth to warm in response.” NASA (2016)



SCIENTIFIC CONSENSUS ON CLIMATE CHANGE



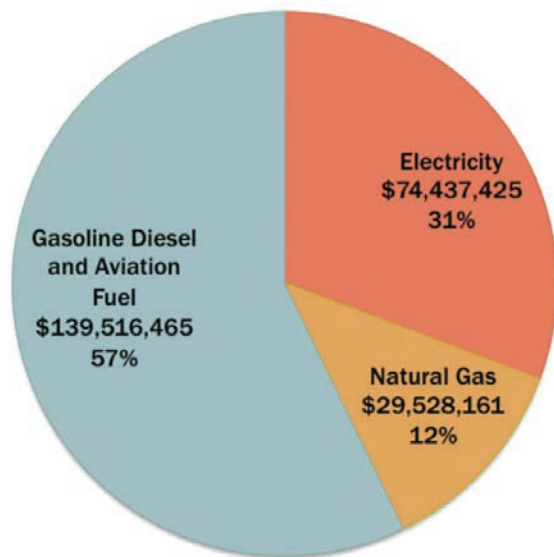
CO₂ is a heat-trapping GHG. As we burn more coal, natural gas, and oil, the “blanket” of GHGs in the atmosphere gets thicker, and the earth gets hotter.

“Climate change has and will continue to impact the state’s resources in a variety of ways, including more rapid snowmelt, longer and more severe droughts, and longer growing seasons.” (Gordon and Ojima, 2015)

References: IPCC (2014) and Doran and Zimmerman (2009)

2014 Eagle County Energy Costs by Source

Total energy costs: \$243.5 million



**More than half of energy costs in 2014 were for transportation fuels, primarily from passenger vehicles on Interstate-70.

Source: *Eagle County Energy Inventory, 2016.*

As a mountain resort community, much of Eagle County is made up of second homes, hotels, and energy-intensive tourism and recreation facilities. The amount of money that leaves the local economy due to high energy expenses is a compelling reason alone to tackle this issue and create solutions. The Eagle County community releases 1.4 million metric tons of CO₂ each year, at a cost of \$243.5 million (Eagle County, 2016).

Based on 2014 energy costs, if we achieve a 25% reduction in GHG emissions by 2025, we could retain \$60 million annually in the local economy and create new jobs in the sustainability industry. Our per capita rate of CO₂ emissions, 25 metric tons per person per year, is 30% higher than the national average.

One of the challenges to solving climate change is that GHGs are invisible. It can be helpful to think of one metric ton of CO₂ as the equivalent of one full hot air balloon. For the Eagle County community, we can imagine 1.4 million hot air balloons floating up from the county each year.

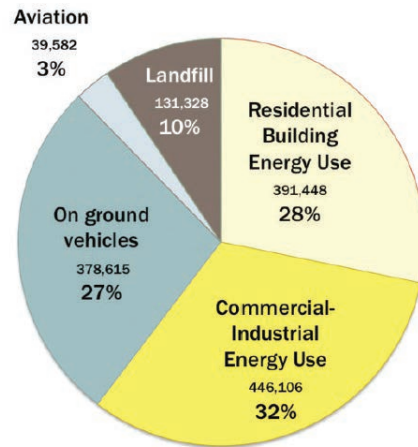
If we achieve a 25% reduction in GHG emissions by 2025, we will retain \$60 million annually in the local economy.



KEY FINDINGS

From the 2014 Eagle County Energy Inventory

Inventory: Emissions by Sector

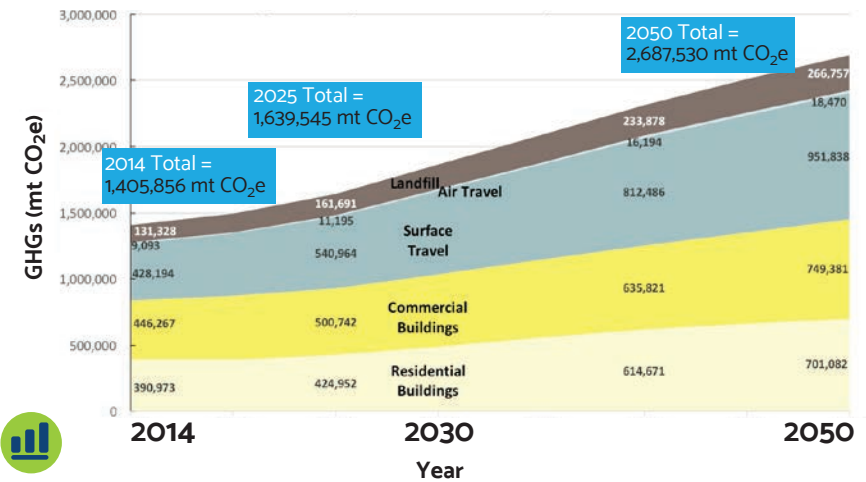


- Buildings and commercial energy uses in our community had larger emissions (60%) than on-ground vehicles (27%) or landfill (10%)
- The single largest source of emissions, at 39%, was from generation of electricity used to power residential and commercial buildings and facilities
- About 22% of electricity was generated from renewable sources, and of that, 1% from solar. The bulk of our electricity during 2014 was produced from coal-fired power plants (62%) and natural gas generation (16%)
- In the vehicles category, 79% of emissions were from SUVs and passenger cars; 21% were from trucks and tractor trailers. Only 9% of total transportation emissions was from aviation

**See Appendix C for "2014 Eagle County Energy Inventory"

If we don't take action, GHG emissions will increase

Eagle County Community *Business as Usual* GHG Forecast Results



In order to demonstrate scenarios of future GHG emissions for the Eagle County community, the Western State Colorado University Center for Environment and Sustainability was consulted. Expert data analyst Dr. Abel Chávez used the 2014 energy inventory to forecast the community's 'business as usual' GHG emissions to the year 2050. The forecast accounts for several key drivers, including demographic, economic, and technical variables.

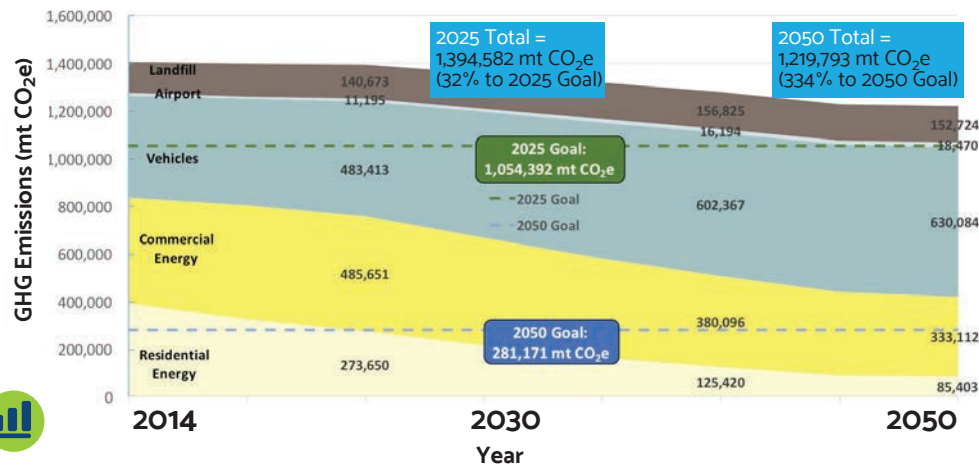


If we take action, we can reduce our GHG emissions

Increasing the efficiency of our homes, commercial buildings and facilities is our biggest opportunity.



Eagle County GHG Emissions with Hypothetical Mitigation Actions



This graph demonstrates that positive measures can be taken by the Eagle County community to reduce GHG emissions. Included in this graph are energy efficiency in residential and commercial buildings, more renewable energy from utilities, climate-friendly transportation, and reductions to waste in the landfill. Even with future population growth, the Eagle County community can be successful at climate action. The actions forecasted in this graph are a good start to climate action, but more actions will need to be included in order to meet the 25% by 2025 and minimum of 80% by 2050 GHG reduction targets.

How YOU Can Cut One Ton of Carbon Pollution:

Switch out 25 incandescent lights with LED

Reduce single car use by 2,400 miles / year

Replace 5 old fridges with Energy Star models

Install 1 KW of Solar Electric (3 panels)

Shut off lights, work stations, and equipment when not needed

Get help from Energy Smart Colorado, and make improvements to your home or business

The Eagle County Community is Ready to Take Action

The stakeholders involved in creating this plan believe that the Eagle County community is now ready and committed to undertake climate action. Involvement in the following existing programs is a good demonstration of peoples' engagement and interest:

- Over 50 local businesses are certified “**Actively Green**” in sustainable business best practices, and awareness of the program is increasing as businesses realize the financial, environmental, and marketing benefits of engaging employees and customers in sustainability. More and more local businesses are also participating in the Colorado Environmental Leadership Awards program.
- Through the **Energy Smart Colorado** program, more than 1,000 homes in the county have received energy assessments, and more than 600 homes and 200 businesses have completed energy efficiency and renewable energy improvements, resulting in over 6,000 metric tons of carbon emission reductions annually.
- Many more homes are adding rooftop solar; the number of LEED (Leadership in Energy and Environmental Design) certified buildings in the community is increasing; and, new community “solar gardens” are becoming a popular way for homes and commercial buildings to attain renewable energy.



Holy Cross Energy board members and community volunteers installed a new solar array in Gypsum.

- Many community events now incorporate “zero waste” collection of recyclables and compostables while educating participants and diverting the majority of potential waste from the landfill.

- New electric vehicle charging stations are being added throughout the community, and more people are taking advantage of state and federal incentives for new purchases and leases on electric vehicles.

- Across the Eagle County community, there is a growing desire and demand for sustainable infrastructure and systems that will engage and enable people to participate in reducing GHG emissions.



Another major reason why action should be taken now is that population growth in Eagle County is increasing. The state census found that there were 52,831 residents in the county in 2014. In less than 25 years, the county residential population is expected to increase to 94,000 people, or more than 40% by 2040 (DOLA, 2016). The growing population will result in more cars on the road, more homes being built, and more support services such as schools, stores, water infrastructure, and other utilities—all of which consume more energy and generate more GHG emissions.

Increasing GHG emissions into the future will contribute to escalated climate change and create negative impacts on the natural environment around us. The projected temperature increases, changes to snowpack and local water resources, health effects on residents and visitors, impacts to the recreation-based economy, increasing population growth, and demands on energy supply are compelling reasons to take climate action seriously. There is an urgent call-to-action for the Eagle County community and local decision makers to collaboratively undertake decisive, meaningful policy and programmatic changes in the areas of energy use in homes and commercial buildings, transportation, waste, energy supply, water conservation, and climate change education.

Goals for the Climate Action Planning Effort

Set meaningful, feasible GHG emission reduction targets

Identify projects and policies to achieve targets

Educate and engage the community about climate change

Build on the knowledge and commitment of the stakeholders

Collaborate across towns, agencies, and organizations

Support and reflect state goals and regional efforts

Serve as a model for other communities

TARGETS FOR GHG EMISSIONS REDUCTION



25% by 2025

50% by 2035

70% by 2045

80% by 2050

**from 2014 Baseline (See 2014 Eagle County Energy Inventory - Appendix C)*

There are three main types of targets found in climate action plans: (1) directional (i.e., up or down from a baseline), (2) analytical (i.e., based on extensive modeling and projections), and (3) aspirational, (i.e., set to achieve something great). The stakeholders set an aspirational target for the year 2050, with interim targets, as well. These aspirational targets are realistic with concerted community action, and yet, they are high enough to have considerable impact and significance. The reduction targets refer to the 2014 Eagle County Energy Inventory data as a baseline. The climate action plan calls for the community to measure and monitor reductions on a regular basis, such as every three years.

By 2050, the Eagle County community will reduce GHG emissions by a minimum of 80%. This target is in alignment with the Intergovernmental Panel on Climate Change's recommendation for reductions of GHG emissions by industrialized nations (IPCC 2014). The stakeholders agree that, while challenging, this aspirational target is a goal that must be achieved in order to foster a significant set of actions to reduce GHG emissions. In addition, collaborative impact would be greater by assuming a target that is in alignment with what the IPCC set, as many other local, regional, and state goals align with the target of 80% reduction by 2050. The science behind this aspirational target has been well-vetted by thousands of climate scientists, and it doesn't need to be defended or re-calculated. Lastly, this robust target will outlast changes in local political leadership that will naturally occur between now and 2050.

By 2025, the Eagle County community will reduce GHG emissions by 25%. The stakeholders set an interim target that will require considerable efforts and hard decisions, but it also allows adequate time to achieve results. This target is consistent with goals set by other communities. By setting a considerable reduction—one quarter of the emissions the community emits now—some actions beyond the “low-hanging fruit” will be required. The aim is to get moving quickly on making annual GHG reductions throughout the community. The stakeholders also feel that the slogan “25% by 2025” would be compelling and effective for early communication efforts throughout the community.

Using these targets, other interim reductions were calculated using a linear approach. The stakeholders agreed that a linear projection of emissions reduction would be the most understandable by the public, even though in reality, there might be large reductions followed by periods of fewer reductions as actions are put into place in different sectors at various times.



RECOMMENDED GHG REDUCTION GOALS & STRATEGIES BY SECTOR

One of the most common ways that communities assess where gains can be made in reducing GHG emissions is by breaking down the source of emissions into understandable categories. These categories, or sectors, make decisions and actions for reducing GHG emissions easier during plan implementation.

This plan contains six “sectors” that correspond to the particular climate action opportunities throughout the Eagle County community: 1) education and outreach to help inform sustainable climate-friendly behaviors, 2) residential buildings, 3) commercial buildings and industrial uses, 4) transportation and mobility, 5) waste and landfill, and 6) energy supply.



Listed in the following section are the top goals and strategy recommendations for each climate action sector. A full list of ideas generated by stakeholders is provided as Appendix A.

EDUCATION AND OUTREACH

Greater community awareness and understanding of climate change is needed so that people can participate in climate-friendly sustainable behaviors in their daily lives at home, at work, and throughout the community. Effective community engagement in climate action strategies requires partnerships between multiple sectors, targeted education and outreach methods, and continual evaluation of program successes.



Education and Outreach: Top Recommended Strategies

- Use social-science research on climate change communications and education to inform strategies.
- Create a climate action 'tool kit' to share throughout the community.
- Develop a cross-sector Eagle County climate education team and education plan to reach all ages and demographics in Eagle County. Include Eagle County Schools, private K-12 schools, Colorado Mountain College, Walking Mountains Science Center, and other partners.
- Create a county-wide marketing campaign to raise awareness to engage the community in projects and programs. Include regular announcements through e-newsletters and social media.
- Ensure community equity so that climate action is all-inclusive and provides equitable social, economic, and health benefits.
- Utilize special event platforms to share messages, provide resources, and engage participants in behaviors such as zero waste events and bike-to-work days.
- Incorporate soil-health education to improve carbon sequestration and engage the community in stewardship.
- Expand and enhance existing educational programs:
 - Actively Green sustainable business training and certification program,
 - Energy Smart Colorado energy efficiency coaching for homeowners, businesses, contractors, and realtors
 - Colorado Mountain College Certificate in Sustainability Leadership and Bachelor of Arts in Sustainability Studies
 - Eco-Schools program for K-12 schools, supporting student learning and measurable GHG reduction through energy education and behavior change at schools
 - Colorado State University Extension Service programs and resources.



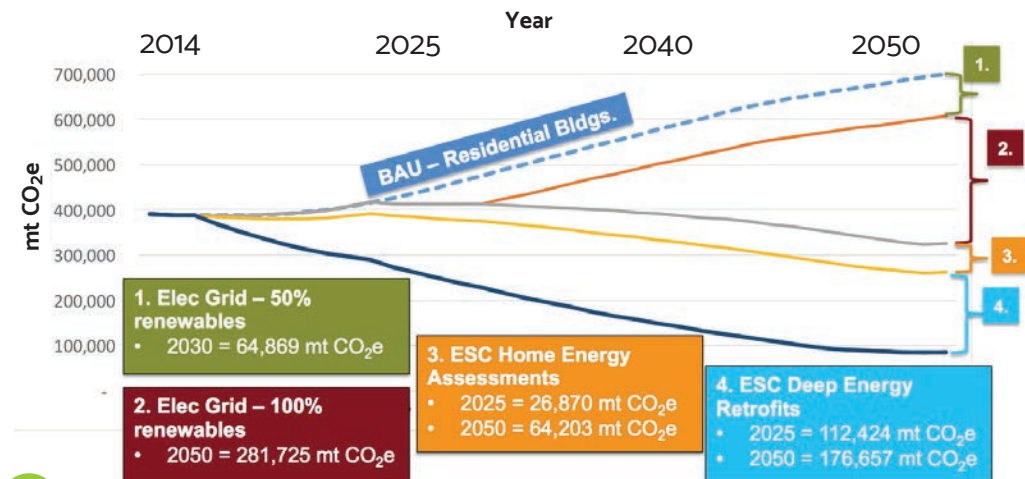


Residential homes create 24% of the total GHG emissions generated in Eagle County. There is a significant opportunity to reduce residential energy use with increased energy efficiency and conservation efforts. The Colorado State Demographer reports that of Eagle County's 31,675 housing units (this figure does not include commercial lodging properties), 38% were considered "vacant" or unoccupied in 2014. Energy efficiency retrofits from local programs, such as Energy Smart Colorado, can reduce a home's energy use by 20-30% and save residents hundreds of dollars on their annual energy bills.

Residential Buildings Sector: Top Recommended Goals and Strategies

- Reduce GHG emissions 25% below 2014 levels in the residential buildings sector by 2025.
- For existing residential buildings, expand the local Energy Smart Colorado energy efficiency program and incentives in order to reduce GHG emissions in 25% of all residential buildings in Eagle County by 2025, 50% of all residential buildings by 2035, and 100% by 2050.
- Provide support and incentives for rental units to be updated with energy efficiency improvements.
- For new residential buildings, adopt "above building code" standards and provide incentives, including "net zero" codes, that are consistent across jurisdictional boundaries throughout Eagle County.
- Update Eagle County Eco-Build mitigation fees to include all energy-use for large homes over the average Eagle County home size of 3,700 sq. ft., not just offsetting heated exterior surfaces and pools.
- Promote and incentivize efficient use of water in interior and exterior of residential buildings.
- Continue partnerships with local energy utilities in order to leverage more economic incentives.

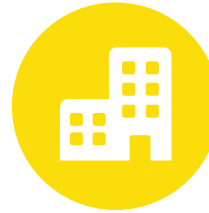
Residential Buildings Sector Mitigation Wedges



This graph was developed by Dr. Abel Chávez using "EMiTT" (Effective Mitigation Transition Tool) to help visualize, model, track, and quantify climate action mitigation targets. This graph is a hypothetical scenario that includes the following GHG abatement pathways: 1) electricity from the grid would include 50% renewable energy by 2050 and 100% renewable energy by 2050, and 2) Energy Smart Colorado would reach the recommended goal of 100% of homes in Eagle County receiving home energy assessments, and half of those homes would complete deep energy retrofits. This graph illustrates that the Eagle County community can take climate action and make significant GHG emission reductions. Fixing aging, leaky buildings is a great start toward effective climate action, but more actions will be needed to reach recommended targets. (BAU = Business As Usual)

REDUCING EMISSIONS: COMMERCIAL

Commercial buildings and facilities account for the top sources of GHG emissions in Eagle County. A large amount of energy waste occurs due to inefficient buildings, high energy demands, deferred maintenance, inattention to building performance, and inefficient behavior on the part of occupants. Given current advances in energy efficiency technology and financing programs, there can be up to 40-60% reduction in building-generated GHGs (American Council for an Energy Efficient Economy, 2014). The commercial buildings that exist today will be inhabited into the foreseeable future; therefore, maximizing building efficiency will help ensure reduced energy demands well into the future.



Commercial Buildings Sector: Top Recommended Goals and Strategies

- Reduce GHG emissions 25% below 2014 levels in the commercial buildings and facilities sector by 2025.
- For existing commercial buildings, expand the Energy Smart Colorado energy efficiency program and incentives in order to reduce GHG emissions in 25% of all commercial buildings in Eagle County by 2025, 50% of all commercial buildings by 2035, and 100% by 2050.
- Provide support and incentives for buildings over 10,000 square feet to measure and track their energy use through CLEER's Energy Navigator, the Energy Star Portfolio Manager, or other energy monitoring tools.
- For new and newly remodeled commercial buildings, adopt "above building code" standards and incentives, including "net zero" codes that are consistent across jurisdictional boundaries throughout Eagle County.
- Promote and incentivize efficient use of water.
- Continue partnerships with local energy utilities in order to leverage for more economic incentives.

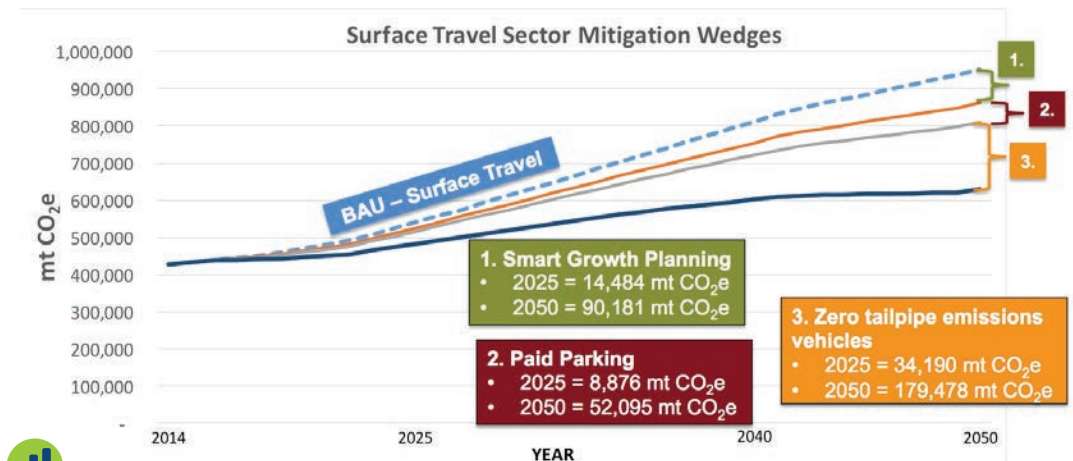




The majority of GHG emissions from transportation are generated from passenger vehicles. The Eagle County community faces a significant challenge due to Interstate-70 and the many vehicles that pass through the county. Nevertheless, significant improvements in local transportation, mobility systems, and infrastructure can reduce locally generated GHG emissions dramatically, while engaging residents and visitors in healthy climate-friendly lifestyles.

Transportation and Mobility Sector: Top Recommended Goals and Strategies

- Reduce GHG emissions 10% below 2014 levels in the transportation and mobility sector by 2025. Consider FREE bus service and expanded services throughout the county.
- Continue to pursue rail transit opportunities to utilize the existing railroad tracks from Dotsero to Leadville.
- Expand the network of electric vehicle charging stations and promote state and federal incentives for purchasing electric vehicles.
- Incentivize and encourage multi-modal transportation, including park-and-ride locations and safe county-wide bike commuting paths and lanes.
- Strive for compact mixed-use communities and land-use patterns with affordable workforce housing in close proximity to job centers to enable walking, biking, and transit.



This graph is a hypothetical scenario that includes the following GHG abatement pathways:

- 1) 1% of the Eagle County population annually adopts driving a zero emission at tailpipe vehicle/electric vehicle,
- 2) increase in paid-parking, reducing the number of people who drive a car to work,
- 3) all new population growth to the year 2050 lives and works in transit-oriented neighborhoods and workplaces.

(BAU = Business As Usual)

WASTE AND LANDFILL

The waste and landfill sector refers to methane GHG emissions that result from anaerobic decomposition of organic waste in the landfill. During the first 20 years after its release into the atmosphere, methane gas is 84 times more potent as a GHG than CO₂. The 2015 Eagle Valley waste diversion rate was 19.6%, and the recycling rate was 26.9%. There is an effort at the national and state levels to transition away from disposal and towards materials management. The greatest positive impacts in this sector can be realized through reducing materials altogether through more sustainable purchasing practices.



Waste and Landfill Sector: Top Recommended Goals and Strategies

- Meet and exceed the current Eagle County landfill waste diversion goal of 30% diversion rate by 2030, and set an inspiring and achievable waste diversion target that is above the national average.
- Divert 30% of organics currently landfilled by 2030 through increased composting infrastructure and services.
- Support sustainable purchasing policies and practices, and incorporate supply chain management systems.
- Add new programs and infrastructure to increase recycling and composting in public areas that are currently deficient, and address hard-to-recycle items like, construction waste and mattresses.
- Support and incentivize recycling and composting services for multi-family buildings which often face challenges, such as high resident turnover and contamination of recycling containers.
- Integrate local waste diversion plan and solutions with the 2016 Colorado Integrated Solid Waste & Materials Management Plan, designed to provide guidance, cost analysis, strategies, and recommendations to communities and local governments.



This graph is a hypothetical scenario that includes diverting half of the compostable materials that currently end up in the landfill. Compostable organics, including paper, account for 60% of the overall tonnage brought to the landfill on an annual basis. (BAU = Business As Usual)

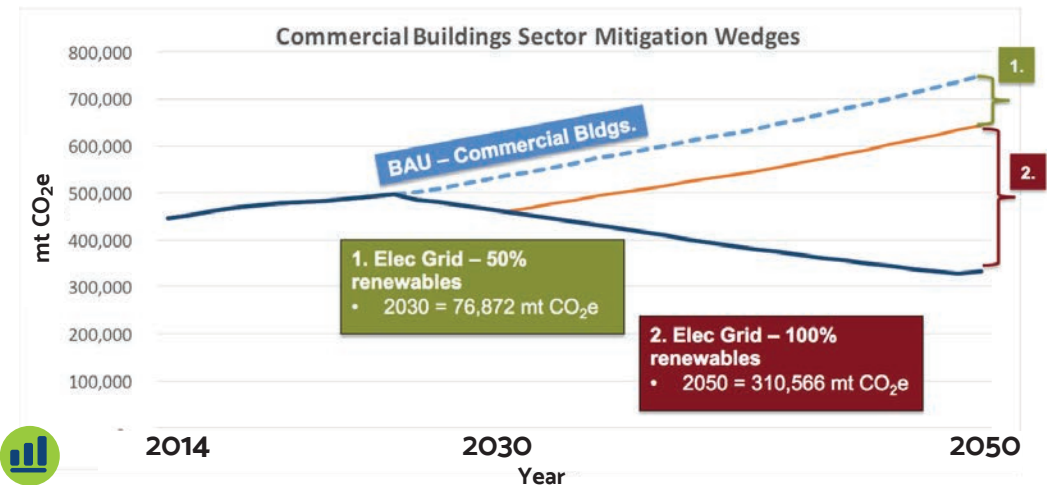




In 2004, Colorado became the first state in the U.S. to create a renewable energy portfolio standard in order to reduce GHG emissions. As the primary provider of energy for buildings and commercial uses throughout the Eagle County community, member-owned utility Holy Cross Energy provides electricity and strives to be a conscientious steward of natural resources. Holy Cross Energy was a pioneer in Colorado, offering consumers the option of purchasing renewable energy to offset GHG emissions. Partnering with utilities, such as Holy Cross Energy, Xcel Energy, and Black Hills Energy, is key toward making large-scale energy supply transitions.

Energy Supply Sector: Top Recommended Goals and Strategies

- Create more financial resources and incentives, and increase the capacity of exterior energy offset programs within the Eagle County community (examples: Eagle County Eco-Build Program, Avon Exterior Energy Offset Program, and Aspen Renewable Energy Mitigation Program), and strive for consistency across jurisdictional boundaries.
- Research feasibility of local and regional locations for community solar arrays.
- Encourage utilities to set aggressive goals to reduce their GHG emissions and transition over time away from coal-fired power production.



This graph is a hypothetical scenario that includes reducing the GHG intensity from the electrical power mix by 50% in 2030 and 100% in 2050. (BAU = Business As Usual)



KEY RECOMMENDATIONS FOR COMMUNITY LEADERS & DECISION MAKERS

The following recommendations support the success of the overall climate action plan and apply to all sectors in this plan:

- 1 Adopt this climate action plan.
- 2 Identify people to guide the implementation and follow-through of recommendations in the current plan—designate a task force and hire sustainability/climate staff as needed within local governments and large businesses.
- 3 Allocate funds for implementation of projects and infrastructure.
- 4 Collaborate across jurisdictional boundaries for greater impact and likelihood of success.
- 5 Measure and monitor GHG reduction impacts over time.
- 6 Begin to address climate change adaptation.

WHAT DOES SUCCESS LOOKS LIKE?

Successful community-driven GHG reduction efforts have several key elements that are centered on realistic and achievable targets, community endorsement and support, and strong alignment with community and organizational values. At the onset of the planning process, the stakeholders identified the following elements that are critical to long-term success of the *Climate Action Plan for the Eagle County Community*.

Set Realistic and Achievable Targets

- GHG reduction targets must be achievable and measurable
- A diverse number of GHG emissions reduction strategies and projects are needed
- Actions must be taken by local governments
- Progress should be monitored regularly
- Celebrate successes along the way to reaching larger goals

Community Endorsement, Ownership, and Support of this Plan is Critical

- There must be broader community awareness of the need for climate action
- Individuals should understand their impacts and responsibilities
- Private sector participation and public-private partnerships are keys to success
- There must be simple, accessible opportunities for individuals to take action
- The community has the tools and resources to reach short and long-term targets

Align the Plan with Community and Organizational Values

- Local governments adopt the plan and hold values that align with the plan
- The plan integrates benefits to the economy, the environment, and social equity
- The plan is a catalyst to coordinated climate action across jurisdiction boundaries
- Local organizations are aligned with the plan and keys to its success
- Local governments strive to coordinate across boundaries
- Minimize policy restrictions that limit people's abilities to take action
- Community-wide climate change education is imperative

Despite the rewards of success, there are challenges to climate action planning and implementation. These include concerns about communication to and adoption by the public, leadership and prioritization of climate change by decision makers, lack of available funding for new projects, lack of long-term coordinated climate action effort, and tangible obstacles such as technology and infrastructure.





CONSIDERATIONS FOR IMPLEMENTATION

- **Breadth of community:** Develop programs and education for both residents and guests
- **Celebrate successes:** Take time to recognize accomplishments along the way
- **Clarity:** Use language and communication tools that the public can understand
- **Funding:** Decision makers prioritize funding for GHG mitigation actions
- **Diversity:** Include a variety of people, strategies, and actions to ensure success
- **Implementation:** Decision makers support human resources to enact projects and policies
- **Infrastructure:** Be ready to make tough decisions about infrastructure and building codes
- **Measurement:** Develop metrics that can be monitored and used by all stakeholders
- **Longevity:** Instill a culture of sustainability, and enact policies that outlast changes in leadership
- **Resistance to change:** Tackle incremental actions that build confidence
- **Unity:** Support towns, county, and other organizations in new climate action partnerships

Call To Action

The success of this plan rests in the hands of the community and its leaders at many levels. The stakeholders have identified projects, programs, and policies that are both feasible and meaningful for the Eagle County community. In order to meet the 2025 target of 25% reduction of GHG emissions, and the aspirational but critical goal of achieving the 2050 target of a minimum of 80% reduction, this plan must be adopted quickly, shared throughout the community, and supported with meaningful resources.

APPENDIXES

Appendix A: Project Ideas & Recommendations



This Appendix includes detailed tables for each of the six sectors including a basic explanation of each and why they matter. This section also includes lists of recommendations for reducing GHG emissions through water conservation and soil carbon sequestration. The tables include an overview of what is already being done in Eagle County, as the county, towns, and other entities have already undertaken meaningful work in reducing GHG emissions. Finally, the tables include details on programs, projects, and policies that can be undertaken to reduce GHG emissions. These robust lists were developed by the stakeholders in order to provide all users of this climate action plan a place to begin mitigating GHG, and they are reflective of the “triple bottom line” of people, planet, and profit. The stakeholders’ intent is that the county, towns, and other entities use these tables to help guide conversations about planning, policy development, and project implementation.

The tables on the following pages also include three columns highlighting ideas that the stakeholders felt would be of special interest to businesses, towns, and the county.

Commercial Buildings and Industrial Energy

This sector includes traditional commercial buildings, multi-family housing, ski area operations, and commercial area heated streets and driveways.

Why focus on the commercial building sector? At 32% of 2014 emissions, this sector constitutes the largest component of the Eagle County community’s GHG emissions. The emissions from this sector can be mitigated through incentives for commercial building owners and landlords, new energy efficient technologies, community solar gardens, education, and sustainable practices in the hospitality sector.

What’s already being done: Energy rebates from Energy Smart Colorado (Eagle County Eco-Build Fund, Avon Exterior Energy Offset Program) and Holy Cross Energy, Actively Green Sustainable Business Training and Certification Program, county and municipal goals to reduce energy use, private sector sustainability initiatives, Eco-Schools programming, and more.

Cont’d Page 25

Programs and projects	Importance to stakeholders	Recommended especially for businesses	Recommended especially for towns	Recommended especially for county
Modify buildings to maximize natural light; add dark sky compliant lighting retrofits	High	✓		
Increase assessments and rebates for renewable energy use on commercial properties	High	✓		
Adopt SmartRegs for buildings	High		✓	✓
Include more advanced levels of Actively Green	High	✓		
Land planning: encourage gardens, green roofs, and native plants in all commercial buildings; create infrastructure for construction and demolition waste, convert golf course “rough” areas into natural habitat	High		✓	✓
Make sustainability practices part of consideration in awarding contracts/ new building requirements - onsite or offsets	High		✓	✓
Allow renters in multi-family buildings to make energy-smart recommendations to building owners			✓	
Encourage landlords to use “green leases”; incentives for landlords		✓	✓	
Develop baseline energy usage for commercial buildings / plazas		✓	✓	
Minimum rental energy efficiency guidelines			✓	
Reduce hotel energy use: install key cards that turns on/off utilities for each room; install timers on gas fireplaces; install occupancy sensors and better automation systems; more education for hospitality sector		✓		
Expand Energy Smart to beyond retrofits; focus on multi-family, low income units			✓	✓
Hold annual meeting of building officials and planning and design review boards to exchange ideas and best practices				✓
Policies and regulations	Importance to stakeholders	Recommended especially for businesses	Recommended especially for towns	Recommended especially for county
Require green laundry practices and efficient toilets at hotels		✓		
Expand local mitigation programs and fees on snowmelt to address outdoor energy use	High		✓	
Develop net zero building codes and certification programs			✓	✓
Set wattage limits for lighting for new/remodeled buildings and dark sky code				
Encourage local stores to sell only LED lights		✓		
Incorporate flexible work hours and telecommuting to reduce building energy use		✓		
Support free building phase two audits / recommissioning				

This sector includes residential homes, both primary and second homes, and multi-family residences with fewer than five units.

Why focus on the residential building sector? Residential building-use constituted 28% of emissions in the Eagle County community in 2014. This large component of the community's emissions can be addressed with homeowner education, energy efficiency audits and incentives, building codes, and other local programs.

What's already being done: Energy Smart Colorado and Holy Cross Energy home energy assessments and rebates for retrofits, 'green' MLS program, access to community solar and wind projects through Holy Cross Energy, and more.

Programs and projects	Importance to stakeholders	Recommended especially for businesses	Recommended especially for towns	Recommended especially for county
Expand Energy Smart Colorado; more education on existing rebate programs; shift to performance based programs	High			
Incentives for landlords and short-term rentals to be more efficient	High			✓
LED light bulb giveaways or conversions; require only LED holiday lights; buy-back program for non-LED lights		✓		
Multi-zone split systems for efficient electric baseboards				
Smart sensors in homes, especially large second homes				
Town-sponsored events and programs that support energy efficiency		✓	✓	
Develop net zero building codes and certification programs			✓	✓
Work with HOAs to promote low water use and energy efficiency practices			✓	
Policies and regulations	Importance to stakeholders	Recommended especially for businesses	Recommended especially for towns	Recommended especially for county
Promote water conservation – native grasses, organic matter, xeriscaping	High		✓	
Generate new sources of revenue for income qualified energy efficiency upgrades; employers could offer as benefit to employees	High	✓	✓	
Eco-Build 3.0 – above 2015 IRC codes for new and existing buildings	High		✓	✓
Consistent building codes across local political boundaries to increase building contractor's time efficiency and avoid "jurisdictional shopping" by contractors	High		✓	✓

This sector includes transportation and transit-oriented design. It also includes the Eagle County Regional Airport.

Why focus on the mobility sector? Almost 30% of the Eagle County community's 2014 emissions came from this sector (3% was from the Eagle County Regional Airport). This sector represents an area in which great gains can be made with policy, infrastructure, education, and a "culture change" among residents and visitors.

What's already being done: ECO Transit, Town of Vail bus system, Sole Power program, improved bike path development, policies to support use of electric bikes, small scale bike share programs, idling policies, and more.

Programs and projects	Importance to stakeholders	Recommended especially for businesses	Recommended especially for towns	Recommended especially for county
Change car culture; company incentives for collective transport and telecommuting/encourage remote working	High	✓	✓	
Bicycle education programs (ex: learn to ride safely, bike repair classes, bike donation/earn a bike programs); bicycle sharing program; E-bikes sharing program	High		✓	
Electric vehicle infrastructure and incentives; electric buses, more electric charging stations	High	✓	✓	✓
Car sharing programs	High			✓
Bike sharing programs and more bike parking areas	High	✓	✓	
Complete connectivity for biking/walking between towns and better designated bikeways to improve safety			✓	✓
Public transport service with existing rail line				✓
Shared work spaces (co-working spaces shared by businesses and others) so people don't have to commute cross county)		✓		
Policies and regulations	Importance to stakeholders	Recommended especially for businesses	Recommended especially for towns	Recommended especially for county
Transit-oriented design zoning	High		✓	✓
Local in-proximity to workplace affordable housing to reduce commuting miles; reduce county sprawl infrastructure extensions	High		✓	✓
Commit to low carbon emission, and zero tailpipe emission, vehicles and equipment		✓	✓	✓
Ride share/carpool service		✓		
Charge for parking			✓	
Encourage carpooling in company vehicles		✓		
Emissions testing; increase MPG policies				✓
Funding for low cost/free transit; first study who uses and if this would be productive				✓

This sector includes waste diversion, residential and commercial recycling, and the county landfill.

Why focus on the waste reduction sector? Reduce-Reuse-Recycle, all three R's are important. In 2015, the overall waste diversion rate of the Eagle Valley was 19.6%. This included general recycled materials, organic materials including yard waste, and household hazardous waste including electronic waste. Eagle County has set an overall waste diversion goal of 30% by 2030. The Eagle Valley recycling rate was 26.9% in 2015; this is below the national average of 34%. Waste reduction, recycling and composting, and sustainable purchasing are areas in which the community can have a greater impact through policy, better infrastructure, education, and programs. A 2010 study of the waste stream at the Eagle County landfill revealed that 40% of current landfill waste could be processed as compost if a commercial scale facility were available.

What's already being done: Eagle County Materials Recovery Facility, waste haulers provide recycling, county and town supported recycling drop-off sites, e-waste collection events, zero waste events, collaboration amongst Eagle Valley Waste Diversion Steering Committee, waste reduction goals set by local governments and other entities, Actively Green Sustainable Business Training and Certification Program, Eco-Schools, and other programs. One town has recently implemented a plastic bag ban and a recycling ordinance.

Educational tours to the landfill and recycling facility are very popular.

Cont'd Page 29





Programs and projects	Importance to stakeholders	Recommended especially for businesses	Recommended especially for towns	Recommended especially for county
Update Eagle Valley Waste Diversion plan; consider increasing waste diversion goals	High			✓
Ensure all schools recycle and compost (when commercial composting becomes available)	High		✓	✓
Reuse construction materials (lumber and construction and demolition waste)	High		✓	
Group for sustainable purchasing, including local food purchasing	High	✓		
Infrastructure improvements for waste diversion, possible single stream at MRF, organic waste diversion	High			✓
Zero waste events supported by towns and event producers		✓	✓	
Repurpose waste into energy or materials				✓
Address infrastructure gaps discovered in waste access audit of public spaces		✓	✓	
Visible public recycling areas, drop sites – at bus stops, sidewalks, at events, etc.			✓	✓
Home and community composting				
Anaerobic digesters and methane capture operations				✓
Policies and regulations	Importance to stakeholders	Recommended especially for businesses	Recommended especially for towns	Recommended especially for county
Zero waste event goals – encourage events and event facilities to be zero waste	High	✓	✓	
Research feasibility of increasing landfill tipping fee to support waste diversion efforts	High			✓
Support a Colorado Bottle bill – recycling of glass bottles				
Reduce use of single use shopping bags county-wide			✓	✓
Yard waste collection county-wide			✓	✓
Commercial compost provided			✓	✓
Packaging policies, get rid of Styrofoam		✓	✓	✓
Register pesticide users to protect organic waste			✓	
Consistent county-wide recycling practices and procedures			✓	✓
Waste hauler licensing			✓	
Pay as you throw			✓	✓

Give community members the knowledge and power to understand their impacts and make climate-friendly choices

- Use social-science research on climate change communications for education and outreach strategies (e.g., Yale Program on Climate Change Communication, and George Mason Center for Climate Change Communication resources)
- Incorporate social diversity and inclusivity throughout education and outreach
- Develop a climate action class to feed into current sustainability education programs and trainings
- Convene and educate neighborhood climate action groups
- Continue to host educational tours to the landfill, and include the materials recovery facility (MRF) and hazardous household waste facility
- Host household zero-waste training for residential homeowners
- Educate home owners and businesses on shutting down and unplugging when leaving the home or office (reduce “vampire” energy-use)
- Educate and incentivize second homeowners to reduce energy use
- Promote use of “smart hubs” to understand real-time energy use
- Conduct trainings specifically for property managers and landscapers
- Educate land owners and users on climate-friendly land use practices

Support businesses in climate-friendly practices

- Encourage more participation of businesses in the Actively Green Sustainable Business Training and Certification Program
- Reduce waste through sustainable purchasing practices and less packaging
- Provide more employer/employee climate action and sustainability training
- Leverage the VVP Actively Green Awards and the Annual Actively Green Awards Party for businesses
- Engage local organizations and groups in educating businesses
- Provide cards for hotel rooms and short-term rentals; educate guests on why their efforts matter (water-wise signage, etc.)
- Develop employee field experiences, retreats, and experiential learning for climate science understanding for mountain communities

Cont'd Page 31

Create a culture in the community that promotes climate action and sustainability

- Create a climate education team to educate about and support implementation of the Climate Action Plan
- Provide an e-newsletter with updates on progress related to the Climate Action Plan
- Create a valley-wide marketing campaign to elevate day-to-day awareness of climate action and sustainable living
- Use an “education-through-demonstration” approach to showcase climate-friendly building, landscaping, and other best-practices
- Share the benefits with visitors, such as carbon sequestration and water conservation

Engage school children and their families for long-lasting change

- Expand the Eco-Schools program at all K-12 schools to educate and recognize youth for their leadership, and incorporate energy saving programs and infrastructure at all schools
- Develop competitions for schools on ‘how to reduce carbon footprint’
- Develop “farm-to-school” fresh, local food served in school cafeterias, and teach food production and gardening as part of the curriculum

Ideas for an education and marketing campaign promoting climate action

- Develop a multi-media brand platform
- Create a video about actions that can be taken to promote climate action
- Utilize local media, TV, radio, and social media
- Fund an educational point position with responsibilities to oversee implementation of climate action education and outreach
- Use standardized and frequently communicated, measurable goals
- Use empowering positive messages and real-world examples
- Focus messages on improved quality of life, connect the message to people and the future
- Identify influencers and have them speak up—local celebrities and leaders at regular and fun community events
- Host “Trash Talk” about waste with winter visitors—education campaign
- Train volunteer advocates for each neighborhood to share ideas with their neighbors; work through neighborhood and homeowner associations
- Include outreach to all community sectors, associations, clubs, chambers, etc.

- 1** Reduce reliance on coal-fired power plants, and add more renewable energy sources
- 2** Provide consumers an option to return equity checks back to Holy Cross Energy to invest in clean power or energy efficiency programs
- 3** Restructure utility rates to make energy efficiency and conservation more attractive
- 4** Educate utility co-op owners to advocate for changes
- 5** Identify areas for local solar arrays
- 6** Explore use of geothermal energy supply for homes and commercial buildings
- 7** Explore new technologies, such as storage, to increase renewable energy usage
- 8** Support Colorado Communities for Climate Action (policy initiatives and lobbyists at the state-level focused on GHG reduction)



ADDITIONAL RECOMMENDATIONS

Water Conservation and Energy

Water conservation reduces demand for both water and energy. Conserving water can play an important role in reducing GHG emissions. The storage, transport, and delivery of water for commercial, residential, and agricultural needs lead to significant GHG emissions. The stakeholders recommend several strategies to conserve water and save energy:

- Educate people that all water consumed has to be pumped and processed, requiring energy
- Support water utilities and local governments in initiatives to reduce water consumption in facilities and operations
- Include more heat recovery systems that use heat energy from discharged treated effluent, such as Avon's Community Heat Recovery System that heats the pools at the Avon Recreation Center using heat energy from the Avon Waste Water Treatment Facility
- Reduce use of water in residential and commercial properties
- Develop small hydro plants for electricity generation
- Create a study on incentives to switch to xeriscaping for buildings and residences
- Work with HOAs to promote low water use and energy efficiency practices

Carbon Sequestration and Land Management

Organic matter holds carbon in the soil. Land management, landscaping, farming, and ranching practices that support healthy soil development can also be important ways to capture, or sequester, GHGs in the soil and help protect the atmosphere. Below are recommendations related to carbon sequestration:

- Engage agencies, such as CSU Extension, USDA, NRCS, Betty Ford Alpine Gardens, and The Ground Up, to provide education on land management techniques that increase carbon storage
- Reduce methane emissions by stopping biodegradable materials from entering the landfill, composting can be a vital way to restore and protect the climate
- Promote leaving grass clippings on the ground to return nutrients to the soil
- Reduce impermeable surfaces, and encourage catchment of water that promotes healthy ecosystems
- Encourage green roofs with native plant species that do not require a large amount of water
- Reduce use of synthetic fertilizers and pesticides that are made from fossil fuels that contribute to climate change
- Encourage holistic approaches during revegetation and restoration after disturbances, such as after building and infrastructure construction or after natural disasters (e.g., fires and flooding)

Appendix B: Stakeholder Meetings and Public Engagement Information

Guiding Principles for Stakeholder Group

- Value each other's and the community's input and knowledge
- Keep in mind the triple bottom-line: "people, planet, profit"
- Take calculated risks
- Address all sectors that contribute to GHG emissions
- Develop meaningful goals and metrics to show progress through time
- Strive for informed consent on decisions

Stakeholder Meeting Dates

March 21, 2016

April 18, 2016

May 23, 2016

June 20, 2016

August 22, 2016

November 14, 2016

Stakeholder Meeting Notes and Materials

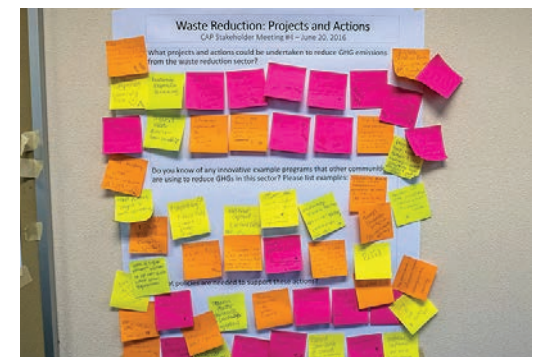
Meeting notes, slideshow presentations, and other supporting materials can be found at www.walkingmountains.org/cap.

Public Open House Sessions

September 14, 2016, Brush Creek Pavilion, Eagle

September 19, 2016, Grand View, Lionshead Welcome Center, Vail

September 22, 2016, Miller Ranch Community Center, Edwards



Eagle County Energy Inventory

2014 data on energy use, costs and GHG emissions



KEY FINDINGS

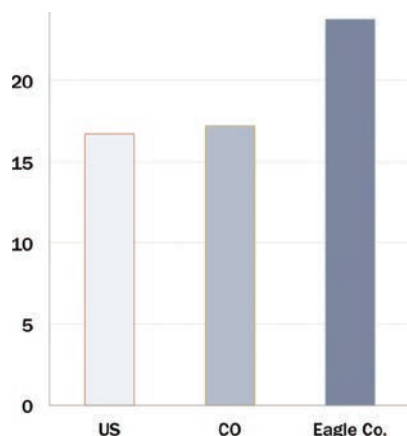
- Greenhouse gas emissions from energy use in Eagle County in 2014 totaled 1.4 million metric tons of carbon dioxide equivalent (CO₂e).
- The single largest source of emissions, at 39 percent, is from the generation of electricity used to power residential and commercial buildings and facilities.
- Greenhouse gas emissions on a per capita basis are higher in Eagle County than in Colorado or the U.S. As a resort community, Eagle County has more second homes, hotels and energy intensive recreation facilities.

- Consistent with national findings, Eagle County transportation emissions come primarily from passenger vehicles.

- The Eagle County community spent \$243 million in 2014 on energy, for electric and natural gas bills and for diesel and gasoline transportation fuels.
- If the community as a whole became 10 percent more energy efficient, \$24 million could stay in the community each year to strengthen the local economy.

Section 1: Overview of Emissions, Energy Costs and Energy Use

Total 2014 carbon dioxide equivalent (CO₂e) emissions:
1,387,080 metric tons



1. Emissions per Capita, 2014

Metric tons of CO₂

Greenhouse gas emissions divided on a per capita basis are 28 percent higher in Eagle County than in Colorado. Contributing factors are transportation, second homes and lodging.

See appendix for details about household energy use and the impact of second homes on energy use.

4. Energy Costs by Source

Total energy costs: \$243.5 million

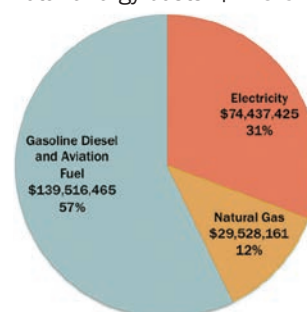
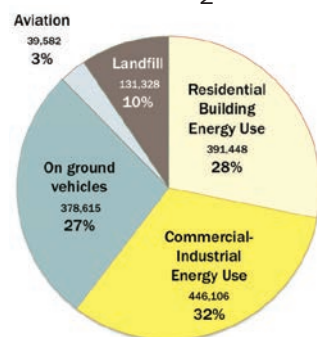


Chart 4 shows that more than half of energy costs are for transportation fuels (based on 2014 average price of \$2.92/gallon). Natural gas prices in Colorado rank 47th in the U.S., thus the small wedge for natural gas costs.

2. Emissions by Sector, 2014

Metric tons of CO₂e



3. Emissions by Source, 2014

Metric tons of CO₂e

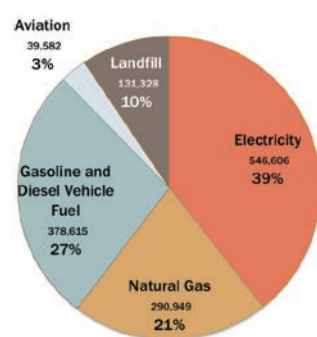


Chart 2 illustrates the sources of emissions by use, while Chart 3 illustrates emissions by fuel source. The residential and the commercial/industrial sectors contribute the largest percentage of total emissions in the county. By fuel, electricity use contributes the largest share of emissions, followed by gasoline and diesel fuels for transportation.

5. Energy Use by Source, 2014

Total energy use: 18.8 trillion BTUs

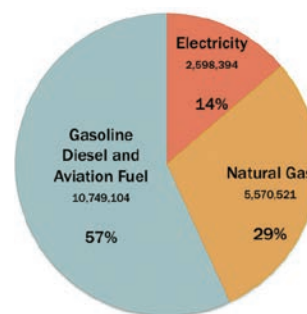
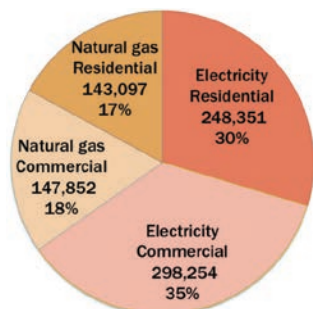


Chart 5 converted gallons of transportation fuel, kilowatt hours of electricity and therms of natural gas into a common, industry standard energy unit, the British thermal unit (BTU). See Appendix for the definition of BTU.

Section 2: Utility Energy

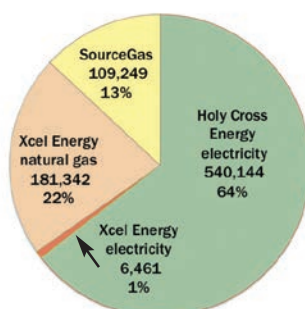
6. Emissions by Sector

Metric tons of CO₂e

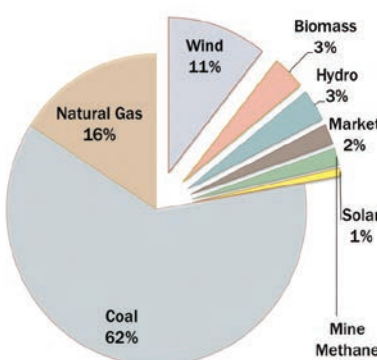


7. Emissions by Utility

Metric tons of CO₂e



8. Holy Cross Energy Electricity Sources



CO₂ emissions/year:
831,384 metric tons
Average CO₂ intensity:
1.57 lb. per kWh
Renewable energy:
20.3%
Member-owned
renewable systems: 517
Capacity: 3,492 kW
Meters in Eagle County:
29,335 residential
6,304 commercial

Electricity is the dominant source of emissions from building energy use.

Section 3: Emissions from Buildings, Facilities and Industry

9. Emissions by Community by Residential and Commercial Sector, 2014

Metric tons of CO₂e

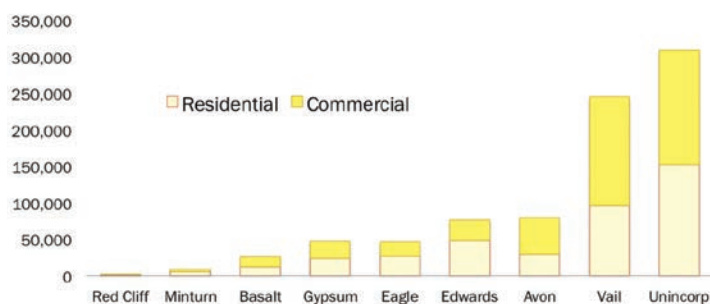


Chart 9 shows total emissions in each community from building, facility and industrial energy use in the residential and commercial sectors.

Notes for Charts 9 and 10:

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

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

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

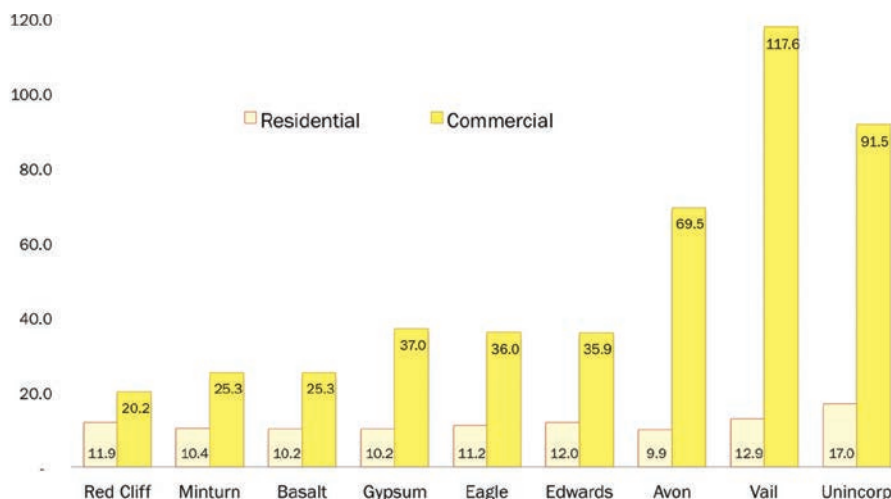
Businesses and governments often hold many utility accounts for the multiple properties they own or lease. In this chart, each utility account is counted separately, regardless of ownership.

10. Emissions by Community by Residential and Commercial Utility Account, 2014

Metric tons of CO₂e

Chart 10 shows emissions by community based on the number of residential (light yellow) and commercial (dark yellow) electric utility accounts in each community and in unincorporated areas (far right bar).

While commercial energy use per account is higher than residential, it's important to note that there are about five times as many residential accounts as commercial accounts across Eagle County. However, total energy use between the two sectors is close, 53 percent for commercial and 47 percent for residential (see Chart 6).



Section 4: Transportation Energy Emissions and Use

11. Eagle County Transportation Emissions, 2014

Metric tons of CO₂e

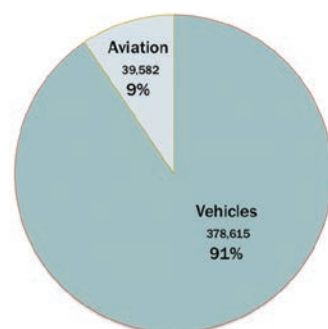


Chart 11. To calculate motor vehicle energy use, the research team determined that the best available method was to use Colorado Department of Transportation traffic statistics for Eagle County. CDOT data does not include county roads or city streets. Because of this missing information, this inventory's estimate is inherently conservative and is very likely an underestimate of total transportation energy use.

Because of the economic importance of I-70 to the region for destination traffic, the high percentage of local traffic on I-70, and the built-in underestimation due to missing city street traffic, the research team chose to include 100 percent of I-70 traffic to represent the county's total vehicle miles traveled.

12. Eagle County Energy Use by Vehicle Class, 2014

Thousands of Gallons

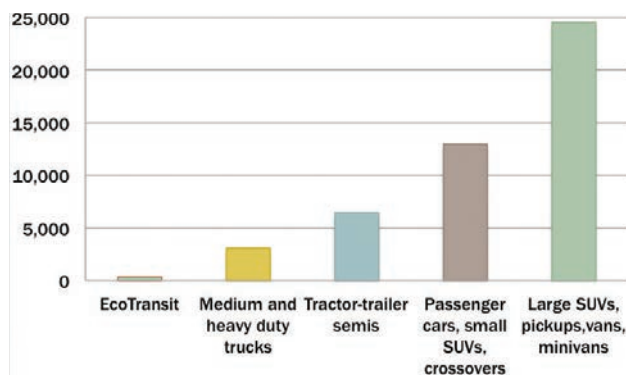


Chart 12. The majority of gasoline and diesel fuel use is for vehicles that carry passengers. The two bars on the right represent small and large passenger vehicles. Combined, they account for 79 percent of gasoline and diesel gallons used in Eagle County. Medium and heavy-duty trucks and semis use 21 percent of gasoline and diesel gallons.

13. U.S. Transportation Sector Emissions by Source

Metric tons of CO₂e

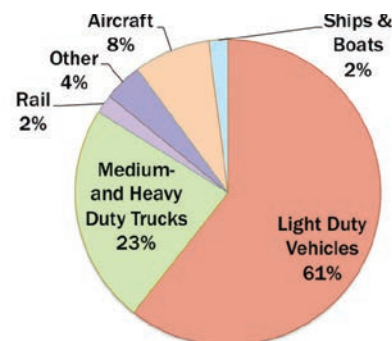


Chart 13. Within the U.S. transportation sector, light-duty vehicles (including passenger cars and light-duty trucks) were by far the largest category, responsible for 61 percent of emissions. Medium- and heavy-duty trucks made up the second largest category, with 23 percent of emissions. Between 1990 and 2013, emissions nationwide in the transportation sector increased more in absolute terms than any other sector (i.e. electricity generation, industry, agriculture, residential, or commercial).

Section 5: Recommendations

Energy Efficiency: Energy efficiency programs need to address electricity consumptions in residential, commercial and industrial sectors across the county. The greatest potential for emissions reduction is in commercial sector energy use.

Renewable Energy: Partnering with Holy Cross Energy to increase the amount of renewable energy in the utility's power portfolio will decrease emissions from electricity consumption.

Transportation: Programs should focus on reducing passenger vehicle travel and shifting to cleaner-burning alternative fuels. Key components should include increased availability of public transit, growth in public electric vehicle charging stations and use of electric vehicles, and more bicycle travel options within communities.

Policy: Local government partners should work toward similar policies that reduce emissions, such as energy efficiency

building codes, land use codes that encourage compact walkable communities and transit-oriented development, and multi-modal transportation planning.

Areas of Further Study

- Travel pattern study to assist with local traffic emissions calculations and planning for mass transit.
- Updated waste composition study at the Eagle County Landfill to ensure more recent data is incorporated into future inventories and to acknowledge improvements at the landfill.
- Energy use study to differentiate between occupied and unoccupied housing.
- Energy use study specifically focused on resort operations.

Appendix

Energy and Emissions by Population and Household

Per capita and per housing unit calculations are one way to compare one community's energy use to others, even when population totals are different. However, these calculations can be difficult to apply in a resort-dominated community such as Eagle County.

Per Capita: A per capita calculation divides energy use or emissions by the permanent population of the community, as shown in Chart 1 (page 1). The Eagle County population used for this calculation was 52,831.

Chart 1 shows a much higher rate of emissions per capita for Eagle than for Colorado or the United States. Eagle County's large resort industry, which includes ski lifts and on-mountain facilities, and a high density of lodging, dining and retail establishments in eastern Eagle County, acts like other large energy-using industries would in skewing the per capita emissions figure.

Per Housing Unit: Per housing unit calculations are another means of comparing one community's energy use to others, specifically in the residential sector. These calculations divide total energy use in the residential sector by the number of households or residential service meters in that community. This calculation excludes emissions from the commercial sector, avoiding the imbalance seen in Chart 1.

However, the per housing unit calculation is also difficult to

apply in Eagle County, because a high percentage of residential units are used sporadically or seasonally as second homes and vacation rentals. These second homes and vacation rentals use energy whether they are vacant or occupied, although they would presumably use less energy when vacant.

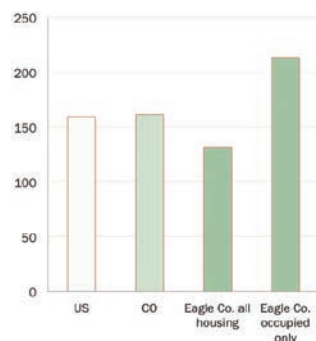
The Colorado State Demographer reports that of Eagle County's 31,675 housing units (this figure does not include commercial lodging properties), 38 percent were considered "vacant" or unoccupied in 2014. Colorado's average vacancy rate in 2014 was 7.6 percent.

Utility companies, however, do not differentiate between permanently occupied homes and sporadically occupied second homes and vacation rentals. So it's impossible, without further study, to calculate energy use by permanently occupied compared to sporadically occupied homes.

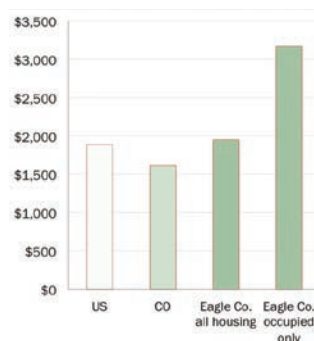
For this inventory, the research team ran the per housing unit calculation both ways, dividing all residential energy use by all housing units (second bar from right in Charts 15-18), and dividing only by permanently occupied units (right bar). Neither bar accurately depicts average household energy use for Eagle County. Dividing by all units yields a low per-unit average, while dividing only by occupied units yields an unfairly high per-unit average. The true number is probably somewhere in between.

Energy per Household per Year, 2014

14. Energy Use, in million BTUs

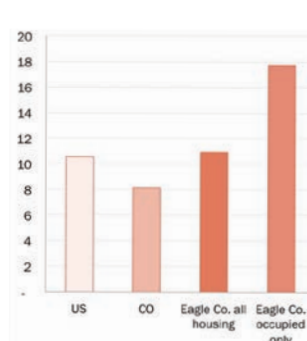


15. Energy Cost

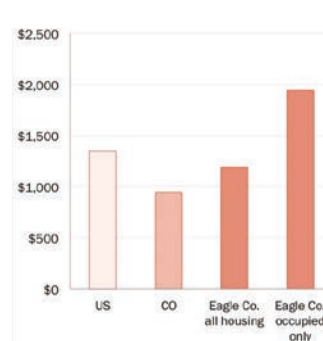


Electricity per Household per Year, 2014

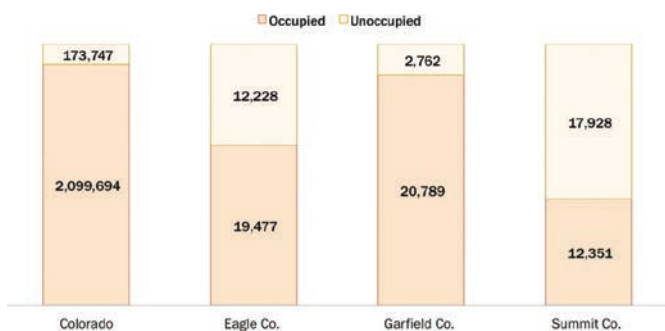
16. Electricity Use, in mWh



17. Electricity Cost



18. Occupied and unoccupied housing units, 2014



Eagle County has a high percentage of unoccupied housing units compared to Colorado overall, or to non-resort counties such as Garfield County. Summit County has an even higher percentage of residential units considered unoccupied.

What is a BTU?

Charts 5 and 15 report total energy use by a common unit, British thermal unit or BTU.

One BTU is the amount of work needed to raise the temperature of 1 pound of water by 1 degree F. For a physical example, burning one 4-inch wooden kitchen match generates 1 BTU.

Sources and Acknowledgements

Data collection and analysis by Erica Sparhawk, CLEER, and Rick Heede, Climate Mitigation Services

Special thanks to the Eagle County Commissioners, Jeanne McQueeney, Jill Ryan and Kathy Chandler-Henry, for their continued work to address climate change, for their understanding of the importance of energy, and for commissioning this emissions inventory for enacting informed climate action policies.

The following individuals provided data, insight, support and expertise for this report:

John Gitchell and Adam Palmer, Eagle County

Heather McGregor and Alice Laird, CLEER

Chris Menges, City of Aspen Canary Initiative

Chris Hildred, Holy Cross Energy

Steve DeGrazio, Xcel Energy

Lisa Pfitzinger and Renae Chandler, Black Hills Energy / SourceGas

Amanda Nolan, Eagle County Landfill

Chris Anderson and Jeffrey Brownback, Eagle County Airport

Energy Inventory Protocol

The Eagle County Energy Inventory quantifies total energy use, costs and carbon emissions by sector and by fuel and utility source, using 2014 as the baseline year.

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

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

Sources

Chart 1

U.S. Energy Information Administration: Carbon emissions by state: www.eia.gov/environment/emissions/state/analysis/
Colorado State Demographer's Office: Population and Household Estimates for Colorado Counties and Municipalities, 2014: bit.ly/COCOUNTYMuniHousing2014

Charts 2 - 7

Eagle County Energy Inventory data gathered from Holy Cross Energy, Xcel Energy, SourceGas, Colorado Department of Transportation, Eagle County Airport

Pitkin, Eagle and Garfield Waste Composition Study, 2009, LBA Associates, funded by U.S. Dept. of Agriculture

Chart 7

In 2016, Black Hills Energy acquired SourceGas.

Chart 8

Holy Cross Energy, 2014 CO2 Emissions Report

Charts 9 - 10

Eagle County Energy Inventory data (usage and customer counts) gathered from Holy Cross Energy, Xcel Energy and SourceGas

Chart 11

Colorado Department of Transportation: Vehicles Miles Traveled Statistics, Data provided by CDOT staff Andrew Hogle and Leo Livechi.

Chart 12

Vehicle miles traveled (VMT) data was combined with the Aspen VMT Model 2014 prepared by Charlier Associates (2015), the nearest regional data available, to estimate vehicle miles traveled per vehicle type, including cars, pickups, and medium and heavy trucks.

Chart 13

U.S. Office of Transportation and Air Quality: Fast Facts: U.S. Transportation Sector Greenhouse Gas Emissions 1990-2013, EPA-420-F-15-032 October 2015: bit.ly/fastfacts15032

Charts 14 - 18

U.S. Energy Information Administration: U.S. & Colorado energy comparisons: bit.ly/EIA-US-Colo

Colorado State Demographer's Office: Population and Household Estimates for Colorado Counties and Municipalities, 2014: bit.ly/COCOUNTYMuniHousing2014



CLEER: Clean Energy Economy for the Region
P.O. Box 428 / 520 S. Third St., Suite 17, Carbondale, Colorado 81623
(970) 704-9200 / CleanEnergyEconomy.net

Appendix D: Glossary of Key Terms

Adaptation – efforts by society or ecosystem to prepare for and adjust to future climate change (e.g., upgrading infrastructure to be prepared for climate change - induced changes in summer temperatures or annual rainfall)

Climate – the average weather over 30 years

Climate Change – a statistically significant variation in either the mean climate or in its variability (decade or longer) due to natural or anthropogenic causes

Mitigation – an effort to reduce or prevent impacts of greenhouse gas emissions (e.g., building more multi-modal trails to reduce vehicle use)

Projection – a model that describes the future of the climate based on trajectories and data

Trend – the trajectory of past climate over short- and long-term periods of time

Resilience – the capability to anticipate, prepare for, or recover from a complex, multi-hazard threat

Weather – the current and short-term way the atmosphere is behaving

Appendix E: Literature Cited

CO Integrated Solid Waste and Materials Management Plan. 2016.

www.colorado.gov/pacific/cdphe/integrated-solid-waste-management-plan

Doran and Zimmerman. 2009. Examining the scientific consensus on climate change Transactions of the American Geophysical Union.

Eagle County. 2016. Eagle County Energy Inventory for year 2014. Eagle County Government and Clean Energy Economy for the Region.

http://www.eaglecounty.us/EnvHealth/Documents/General/Energy_Inventory/

Energy Efficiency - Report: American Council for an Energy Efficient Economy. 2014. www.aceee.org

Gordon and Ojima. 2015. Colorado climate change vulnerability study: A report submitted to the Colorado Energy Office.

<http://www.colorado.edu/climate/co2015vulnerability/>

Intergovernmental Panel on Climate Change (IPCC). 2014. Fifth assessment report. <https://www.ipcc.ch/report/ar5/wg3/>

Lukas et al. 2014. Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation. A report for the CWCB. <http://cwcb.state.co.us/environment/climate-change>

NASA. 2016. <http://climate.nasa.gov/evidence/>

State of Colorado. 2015. Colorado Climate Plan. <http://cwcb.state.co.us/environment/climate-change>

State of Colorado Department of Local Affairs (DOLA). 2016. State Demography Office - Dashboard. Accessed 7/2016,

https://dola.colorado.gov/demog_webapps/dashboard.jsf

CLIMATE ACTION PLAN FOR THE EAGLE COUNTY COMMUNITY





CLIMATE ACTION COLLABORATIVE

CLIMATE ACTION PLAN

UPDATE
2020

Climate Action Plan: 2020 Update

Eagle County is home to world-class outdoor recreation opportunities, stunning and spacious ranches, and tight-knit communities, all among some of the most beautiful landscapes in Colorado. As climate change continues to threaten our livelihoods, **Eagle County** cannot sit dormant. We must take a strong stance on climate action and deliver on the goals set in the Eagle County Climate Action Plan.

The purpose of this Climate Action Plan Update is to explain the latest research in climate science, underscore the level of urgency needed for solution implementation, and highlight the role *Climate Action Collaborative (CAC) stakeholders* and the *Eagle County community*—governments, businesses, utilities, and citizens—must play in the solution.

We are calling for:

- Immediate emergency-grade action on climate
- Prioritization of strategies within this plan update to immediately reduce carbon emissions
- Timely achievement of carbon pollution reduction goals
- Commitment to a healthier and more resilient future for our Eagle County community

The Climate Action Collaborative (CAC) for the Eagle County Community exemplifies the power of community-led action. Systematically addressing global climate change is a formidable challenge that is best done with maximum stakeholder engagement. With our Collaborative partners, we have established a framework to strategize and deliver on greenhouse gas (GHG) emission reductions within the Buildings, Materials Management, Energy Supply, and Transportation sectors, as well as mechanisms to enhance efforts for education and outreach, water conservation, and carbon sequestration.

The priority actions identified in this update were selected through collaborative stakeholder input in 2020. The actions were derived from GHG modeling conducted by the CAC in 2020 and the original Climate Action Plan for the Eagle County Community. The emissions reduction goal in this update was established in 2020 to align with the State of Colorado GHG emission reduction goal and the Intergovernmental Panel on Climate Change global GHG reduction target.

#BEBETTERTOGETHER

Table of
Contents

Timeline for Action | 2
Carbon Reduction Graph | 3
Buildings | 4-5

Transportation & Mobility | 6
Energy Supply | 7
Materials Management | 8

Carbon Sequestration | 9
Education & Outreach | 10
Beneficial Electrification | 11

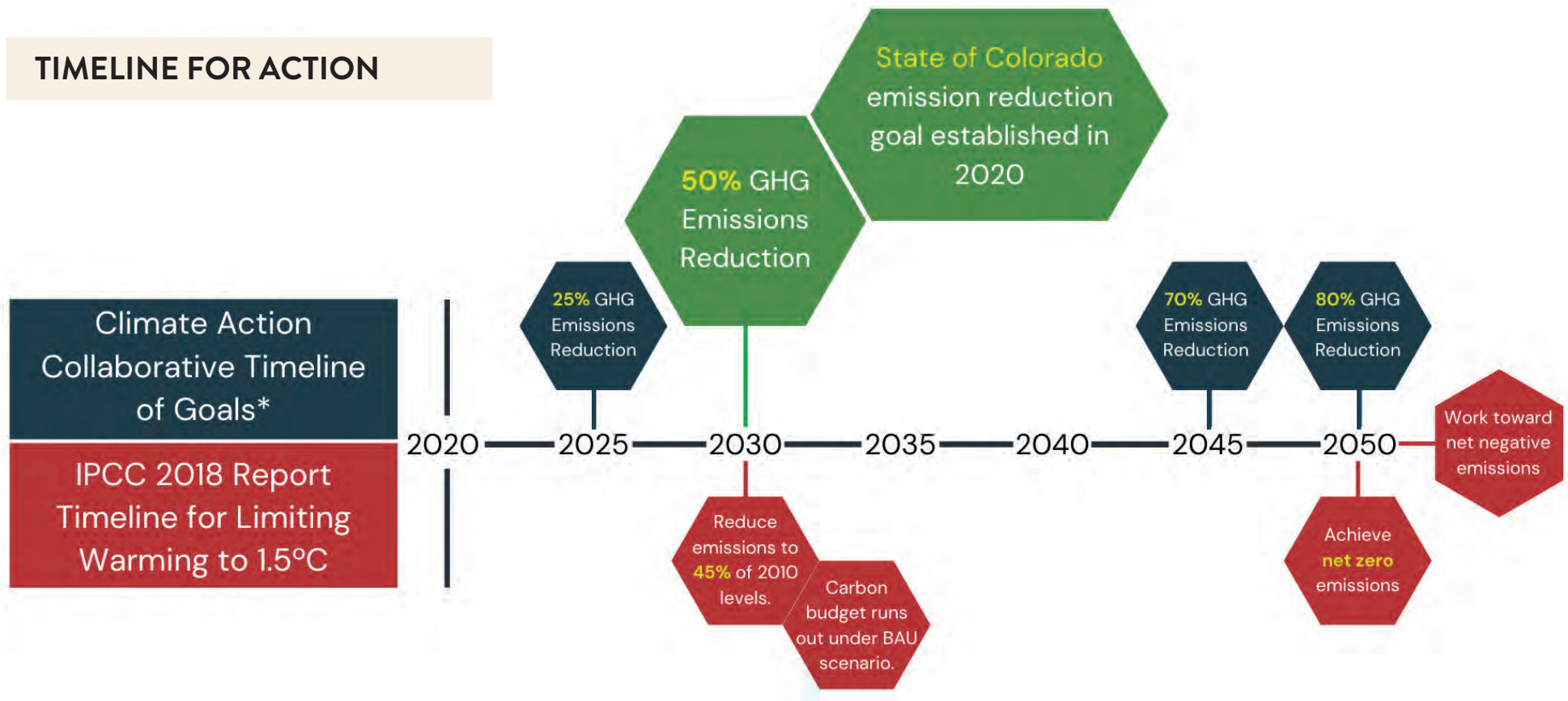
Methane Digester | 12
Resilience | 13-14
Appendix | 15-17

1.5°C IS THE TIPPING POINT

The global surface temperature has already warmed 1.0°C. While further warming is inevitable, we still have the power to reduce the magnitude of its impacts. 2018 brought a new report from the Intergovernmental Panel on Climate Change (IPCC) on the benefits of limiting warming to **1.5°C**. Remaining beneath 1.5°C will require a significant reduction in fossil fuel use, but will avoid the widespread and permanent catastrophe that will come with an overshoot of the 1.5°C mark.

To do this, the IPCC states we must achieve a minimum 45% emissions reduction from 2010 levels by 2030; and if nothing changes, we are on track to **burn through our carbon budget in 8-10 years**.

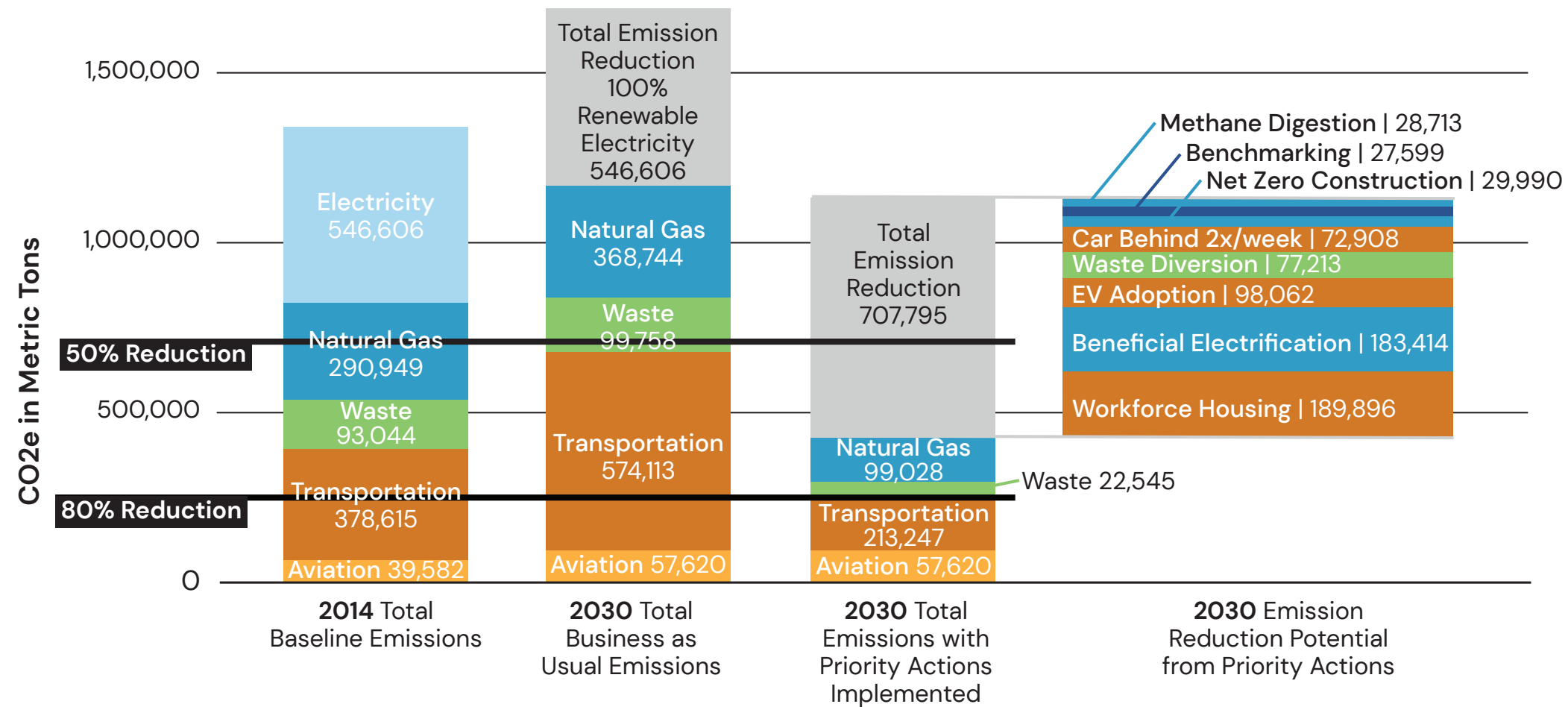
TIMELINE FOR ACTION



*From 2014 Baseline (see 2014 Eagle County Energy Inventory). BAU = Business as usual. GHG = Greenhouse Gas

Carbon Emission Reduction Potential from Priority Actions

All numbers reported in Metric tons of CO₂e



ANNUAL SUCCESS BENCHMARKS

Transportation

1,100 new EVs on the road.

2x per week, Eagle County residents leave their cars behind on work commute.

Buildings

10 commercial buildings electrified.

1,641 residential homes electrified.

10% increase of new building SF to be all-electric or net zero.

≥10,000 SF commercial buildings benchmarked.

Waste

8% increase in organic waste diverted through recycling and compost.

10% increase in diversion of recoverable construction waste.



BUILDINGS

IMMEDIATE PRIORITY ACTIONS

- ★ Beneficial Electrification for 5% of existing residential and commercial buildings each year.
- ★ For new and remodeled residential and commercial buildings, adopt 'above building code' standards and incentives, and implement net-zero or all-electric construction requirements by 2030. Work toward consistency across jurisdictional boundaries in Eagle County.
- ★ Implement a benchmarking ordinance in Eagle County for all commercial buildings 10,000 square feet or larger.

ADDITIONAL STRATEGIES

- Expand Walking Mountains Energy Programs' home energy assessment program to audit 50% of Eagle County homes by 2030.
- Expand local Exterior Energy Offset Programs to include commercial buildings and homes over 3,700 square feet. Work towards consistency across jurisdictional boundaries in Eagle County.
- Hold an annual meeting of building officials and planning and design review boards to exchange ideas and best practices for building code enforcement.
- Continue partnerships with local energy utilities and Walking Mountains Energy Programs to leverage economic incentives that promote residential and commercial energy efficiency.
- Provide support and incentives for rental units to be updated with energy efficiency improvements.
- Consider a HERS Rating requirement for new residential construction.



ACTIONS FOR BUILDINGS



STEP 1: ENERGY EFFICIENCY

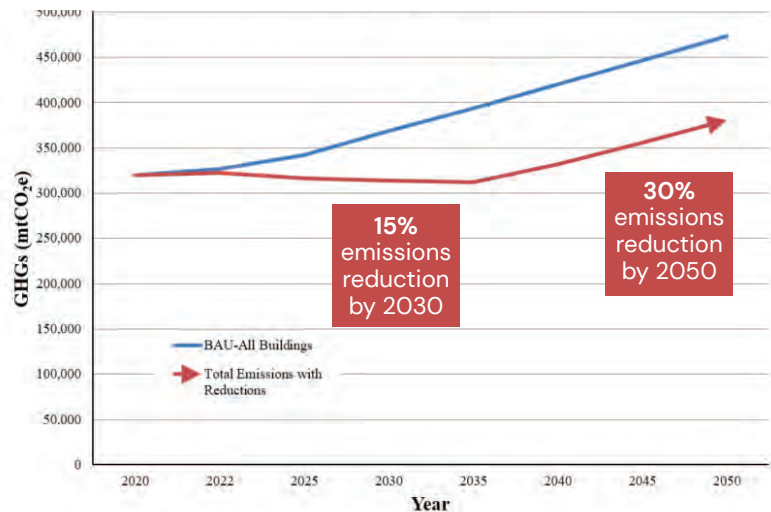
The Colorado Energy Office lists "Expand Energy Efficiency" as the number one priority out of the five most impactful actions for local government policy in mitigating GHG pollution.

Priority actions include:

- Benchmarking commercial buildings

"Energy efficiency in residential and commercial buildings is a no-regrets action in the near term" –State of Colorado 2020 GHG Pollution Reduction Roadmap

Commercial Building Benchmarking



Assumptions: [Red Line] Emission reduction potential from benchmarking commercial buildings. The 50 largest commercial buildings will be benchmarked by 2022, and the remaining commercial buildings above 10,000 square feet by 2023. The scenario assumes a 3%/year gain in energy efficiency per building benchmarked, maxing out at 35% efficiency.

STEP 2: FUEL SWITCHING

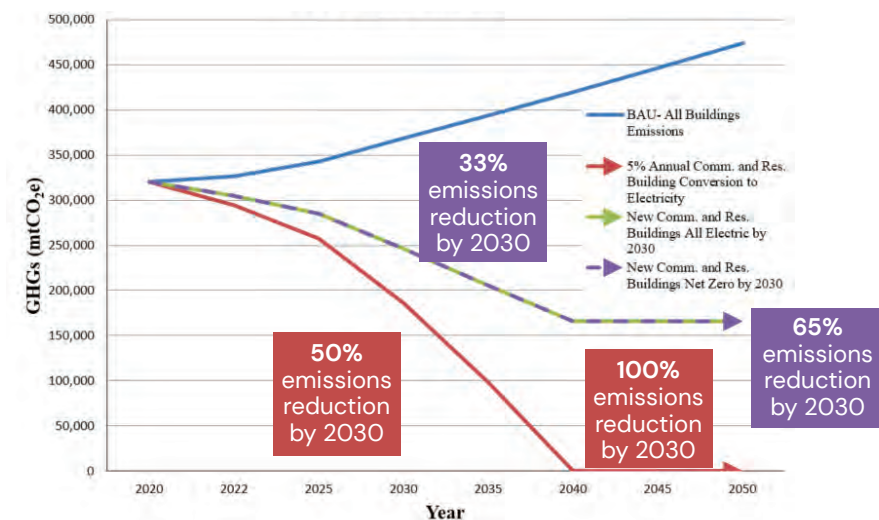
After maximizing energy efficiency in existing buildings, the next step to reducing GHG emissions from the buildings sector is replacing inefficient fuels with cleaner alternatives.

Priority actions include:

- Electrifying buildings
- Net zero or all-electric building codes for new construction

Because of long-lasting infrastructure, *"immediate steps are hence important to avoid lock-in of inefficient carbon and energy-intensive buildings."* –IPCC, 2018

Beneficial Electrification and All-Electric New Construction



Assumptions: [Red Line] Conversion of 5% of existing commercial and residential properties to electricity each year beginning in 2021. [Green/Purple Line] Data includes no new natural gas in residential and commercial buildings after 2030, and beginning in 2021 10% of all new construction is net-zero or all-electric.



TRANSPORTATION & MOBILITY



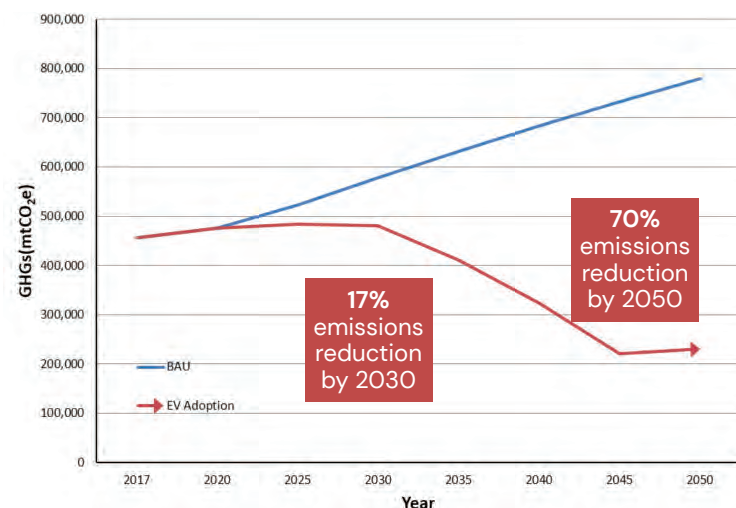
IMMEDIATE PRIORITY ACTIONS

- ★ 2% increase in electric vehicle penetration each year as a percentage of all registered vehicles in Eagle County.
- ★ Implement a behavior change campaign to reduce single-occupancy vehicle commute trips 2 days per week by encouraging local businesses to provide smart commuting incentives or establish policies to support multi-modal commuting, flexible work arrangements, and remote work.
- ★ Strive for 50% of the workforce living within 5 miles of their employment center via mixed-use communities, affordable community housing near job centers, and intercommunity multi-modal transportation options.

ADDITIONAL STRATEGIES

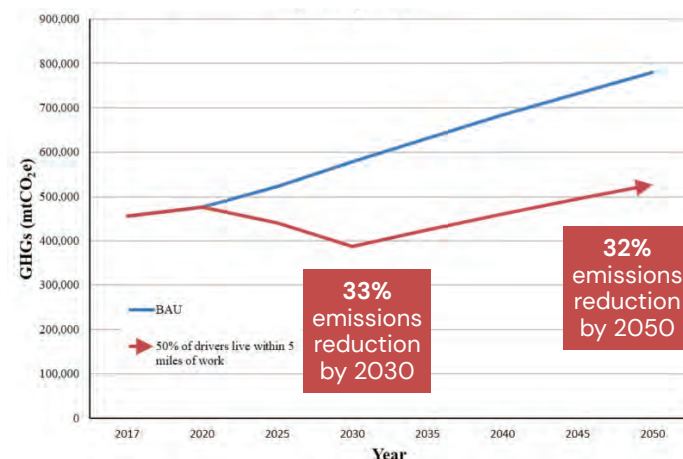
- Create a community-wide interconnected mobility system to support multi-modal transportation including park-n-rides and pedestrian and bike infrastructure to support transit ridership, complete and connected bike commuting paths and lanes, and safe and accessible sidewalks.
- Expand bus service across the county, specifically targeted at commuters.
- Pilot bike or electric bike sharing programs and determine the viability of County-wide program.
- Continue to pursue rail transit opportunities to utilize existing railroad tracks from Dotsero to Leadville.

2% EV Adoption until 2030, 5% EV Adoption until 2050



Assumptions: [Red Line] 2% increase in registered EVs in Eagle County, excluding diesel-powered cars and medium/large trucks and buses. Includes emissions from EV charging.

50% of the Working Population Lives Within 5 Miles of Work by 2030



Assumptions: [Red Line] 17.5% of people already live within 5 miles of work (2019 Census, reference Appendix A). This scenario assumes a 10% annual increase in people living within the 5 mile proximity. It excludes single-unit trucks, combination trucks, and buses in commuting mileage reduction calculations.

ENERGY SUPPLY



IMMEDIATE PRIORITY ACTIONS

- ★ Support goal of 100% renewable energy supply for the electric sector by 2030.
- ★ Analyze and develop local renewable energy resources through waste-to-energy, methane capture, and anaerobic digestion.
- ★ Consider heat waste utilization and renewable energy technology to power district scale snowmelt systems.
- ★ Reduce methane leakage through natural gas system efficiency.

ADDITIONAL STRATEGIES

- Encourage resident and business participation in various utility rate programs that encourage energy conservation during peak times.
- Explore the use of microgrids in Eagle County, where solar can be paired with storage to provide resiliency benefits for local emergency response infrastructure.
- Incentivize or promote renewable electricity use through on-site solar or renewable energy offset programs offered through local utilities, particularly when renewable electricity is paired with all-electric building systems.

PREPARING FOR A RESILIENT ENERGY FUTURE

Limiting global warming to 1.5°C requires 70–85% of the world's energy to be supplied by renewables (IPCC, 2018). Here in Colorado, we are endowed with enough wind and solar resources to "produce hundreds of times as much electricity as the state consumes each year" (energyoffice.colorado.gov).

Eagle County can build resilience by capitalizing on Colorado's resource abundance with on-site renewable energy generation.



Co-Benefits of Local Renewable Energy Generation

- Resilient energy supply via distributed energy systems and energy storage that allows for reliable power during emergencies.
- Improved health and safety (better air quality and reduction of gas leaks) by avoiding fossil fuel-based electricity generation.
- Support for ecosystem services by combining low-impact solar development with native vegetation growth.
- Economic growth provided by both direct and indirect job creation, support of local businesses, and energy cost savings.



MATERIALS MANAGEMENT



IMMEDIATE PRIORITY ACTIONS

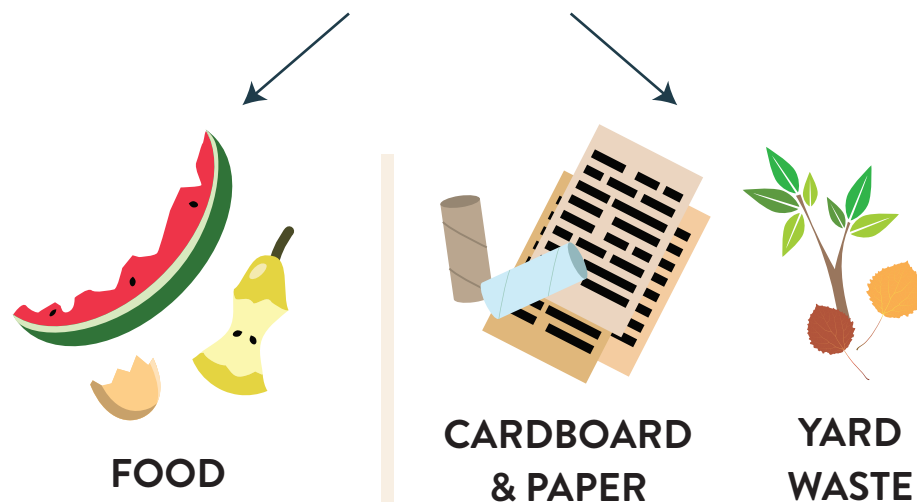
- ★ Divert 80% of organics currently landfilled by 2030.
- ★ Divert 100% of all recoverable construction and demolition (C&D) waste from the landfill by 2030 (some organic material may exist in this waste stream).
- ★ Divert yard waste from landfill by 2030 through implementation of county-wide collection sites.
- ★ Divert cardboard from the landfill.

ADDITIONAL STRATEGIES

- Establish recycling and composting programs in all schools in Eagle County.
- Transition Eagle County Materials Recovery Facility to single-stream.
- Support sustainable purchasing policies and practices and incorporate supply chain management systems for businesses and local governments.
- Implement a pay as you throw model county-wide.
- Support and incentivize recycling and composting services for multi-family buildings which often face challenges, such as high resident turnovers and contamination of recycling containers.

ORGANIC WASTE DIVERSION

Organic Waste: Waste that comes from plant- or animal-based materials. 59% of all waste generated in the Eagle County Municipal Solid Waste stream is organic waste.



DIVERSION OPTIONS

Reduce initial amounts
Recover surplus
Animal feed
Compost
Methane Digestion

Reuse
Recycle
Compost
Methane Digestion

CARBON SEQUESTRATION

IMMEDIATE PRIORITY ACTIONS

- ★ Pilot projects on open space that use soil amendments to increase carbon sequestration.
- ★ Incorporate soil-health education to improve carbon sequestration and engage the community in stewardship.
- ★ Promote regenerative agriculture to enhance soil-health and carbon sequestration.
- ★ Determine natural climate solutions plan to protect and enhance existing carbon stocks in Eagle County.
- ★ Implement a Good Traveler carbon offset program for Eagle County Airport.

STATE OF COLORADO NEAR-TERM ACTIONS

- Develop a comprehensive natural and working lands emissions inventory.
- Protect and enhance carbon sequestration on natural and working lands.
- Expand the Advancing Colorado's Renewable Energy and Energy Efficiency (ACRE3) program.
- Increase Colorado producers' participation in national programs such as Field to Market, Soil Health Partnership, and the Ecosystems Market Consortium.

THREE COMPONENTS OF CARBON SEQUESTRATION

1

HEALTHY NATIVE ECO-SYSTEMS

Trees and grasslands are Eagle County's largest carbon capture resources. Thriving native vegetation is crucial to adequate carbon sequestration.

2

HEALTHY SOILS

Soil is a valuable carbon sink. Thoughtful use of open space, agricultural practices, and organic material can help keep carbon in the ground and our soils fertile.

3

CARBON OFFSETS

Eagle County can purchase carbon offsets to support regional and statewide carbon reduction and sequestration projects.





EDUCATION & OUTREACH

IMMEDIATE PRIORITY ACTIONS

- ★ Implement a behavior change campaign to reduce single-occupancy vehicle commute trips 2 days per week by encouraging local businesses to provide smart commuting incentives or establish policies to support multi-modal commuting, flexible work arrangements, and remote work.
- ★ Grow capacity of Collaborative partners to submit public comment in support of local policy that will help achieve our Climate Action Plan goals.
- ★ Support working groups in education and outreach efforts that are identified as critical to achievement of sector specific GHG reduction goals.

ADDITIONAL STRATEGIES

- Maintain climate messaging in the community through regular media presence, newsletters, and the CAC website.
- Promote and expand the Actively Green Business Certification program through participation in either the full certification program or the Green Business Trail Map.
- Establish a system of communication and outreach through Collaborative partners to push out county-wide climate messaging in an effective and consistent manner.

"Climate actions are more strongly related to motivational factors than to knowledge, reflecting individuals' reasons for actions, such as values, ideology and world-views. People consider various types of costs and benefits of actions and focus on consequences that have implications for the values they find most important." (IPCC 2018)



MULTI-SECTOR STRATEGY: BENEFICIAL ELECTRIFICATION

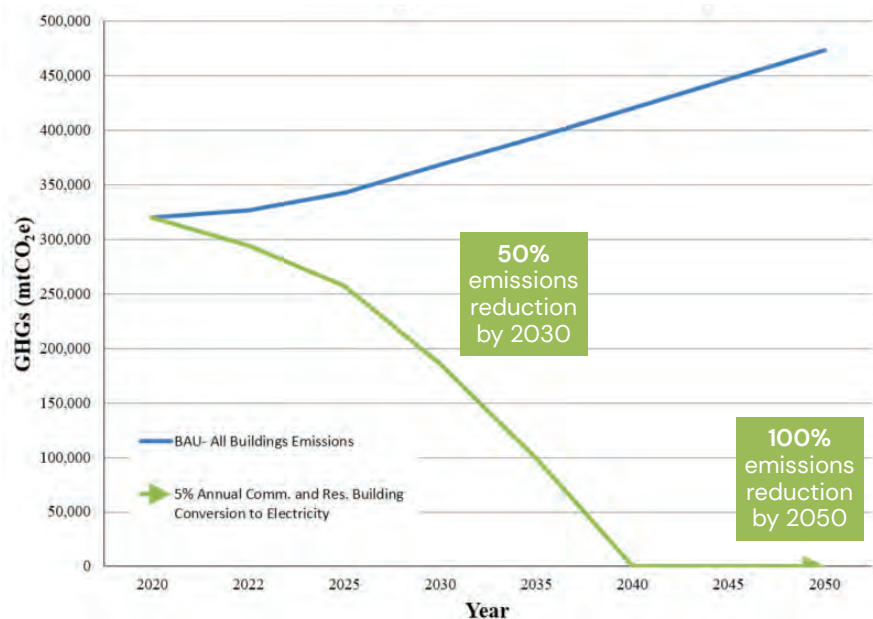
Beneficial electrification is a term that refers to the emissions and cost reductions that result from replacing fossil fuels with electricity. Electrification is beneficial if it reduces costs and emissions and helps improve electricity grid management. The term represents an effort to find a favorable balance between consumers, utilities, and the environment (NRDC 2018).

Buildings and vehicles are able to run off of electricity, but the majority continue to use fossil fuels for power. Electrification of buildings and vehicles is the quickest way to reduce carbon emissions as our electric grid rapidly transitions to 100% renewable electricity. Working together with the Energy Supply sector, beneficial electrification is a strategy that will enable fast decarbonization across two of the largest emitting sectors; buildings and transportation.



COMMERCIAL & RESIDENTIAL BUILDINGS

5% Annual Building Conversion to Electricity

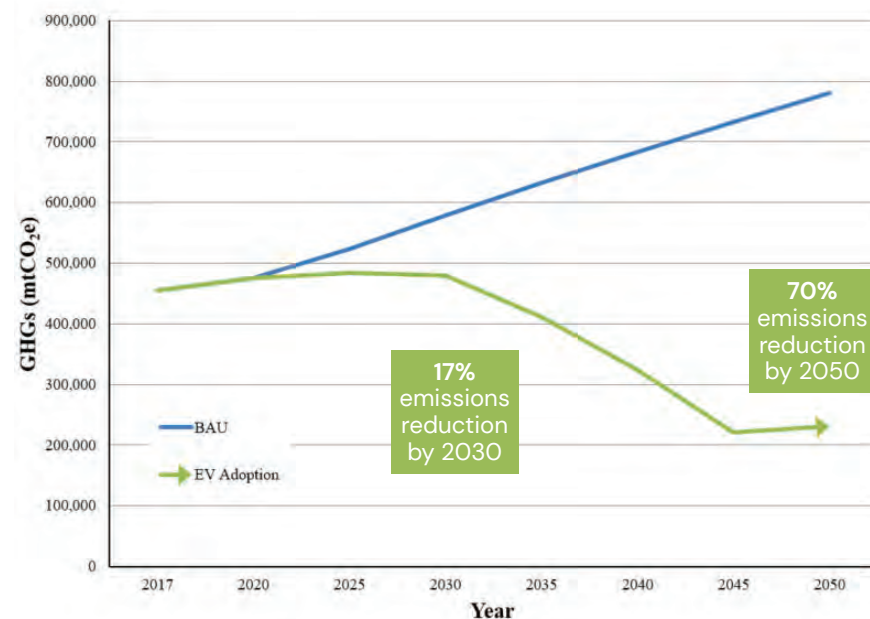


Assumptions: [Green Line] Conversion of 5% of existing commercial and residential properties to electricity each year beginning in 2021.



TRANSPORTATION

2% EV Adoption until 2030, 5% EV Adoption until 2050

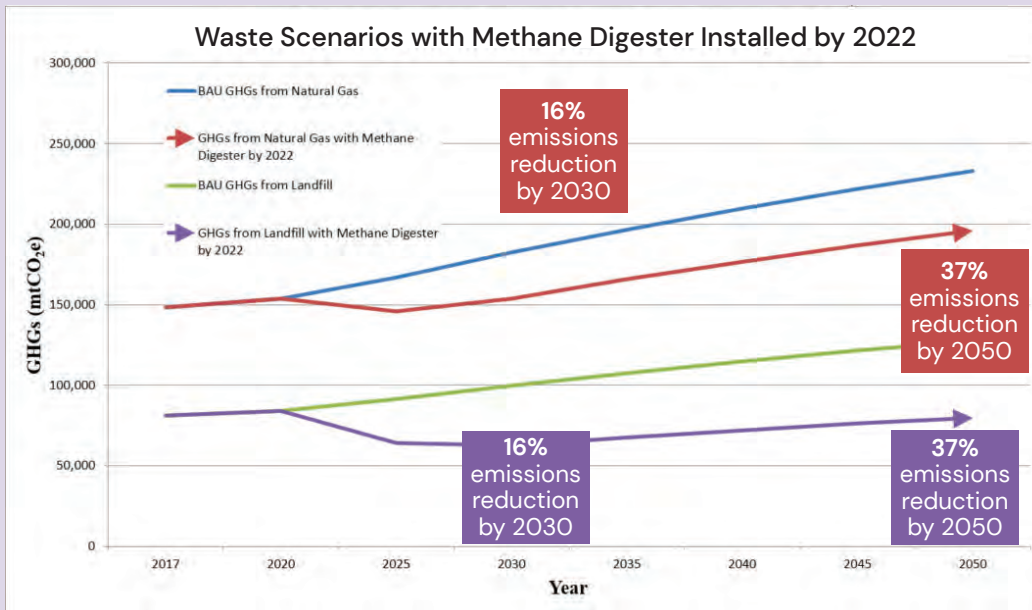


Assumptions: [Green Line] 2% increase in registered EVs on the road, excluding diesel-powered cars and medium/large trucks and buses. Includes emissions from EV charging.

MULTI-SECTOR STRATEGY: METHANE DIGESTER

Methane digesters are a means of generating renewable power through the production of renewable natural gas (RNG) from organic waste as it decomposes in an anaerobic state. The RNG produced can displace traditional natural gas use for space and water heating in buildings, particularly for those commercial buildings that are unable to electrify in a cost-effective way. Methane digesters lower methane emissions from the landfill as organic waste is diverted and it reduces the carbon emissions from buildings that use the RNG produced.

Methane Digesters represent a strategy that can reduce greenhouse gas emissions across the energy supply, buildings, and waste sectors.



Assumptions: [Blue Line] The top set of lines represent emissions levels of buildings using conventional natural gas and [Red Line] using biogas from a methane digester. [Green Line] Emissions levels of landfills and [Purple Line] emissions levels once organic waste is diverted from landfills to the anaerobic digester.

WHAT IS A METHANE DIGESTER?

Methane Digesters use microbes to break down organic matter in an oxygen-deprived environment. This process produces biogas and leftover material called digestate. Biogas is purified to create renewable natural gas, while the digestate is a solid mixture that is packed full of nutrients and can be repurposed as fertilizer. Digesters can use food, agriculture waste, manure, and wastewater treatment plant sludge as feedstock.



Resilience in the Face of a Changing Climate

Colorado's climate is changing as a result of global surface temperature increases. The health of our residents and visitors, our economic growth, critical infrastructure, and our natural resources are all already being affected by these changes and are projected to get more severe in the future. In 2020 alone, Colorado experienced three record-breaking fires and sustained a 'severe' drought status throughout the year. Climate risks for Eagle County continue to rise as the planet warms, therefore it's critical that our community achieve the greenhouse gas mitigation goals in this Plan, and begin to prepare for the climate risks posed to our community. The Eagle County Community Resilience Plan is the foundation and framework for making critical decisions that address the County's extensive range of climate change-related risks well into the future. Learn more about Eagle County's Resilience Plan.

RE• SIL • IENCE

The capability to anticipate, prepare for, respond to, and recover from complex and significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment.

Click the image below to learn more about Eagle County's resilience strategies.



WATER RESILIENCY

RESILIENCE PLAN ACTIONS

- Adopt and enforce requirements that improve water quality and quantity.
- Encourage the adoption of innovative indoor and outdoor water efficiency programs and strategies.
- Plan, fund, and implement wildlife habitat restoration projects, especially in riparian zones.
- Support water planning efforts that consider potential population growth in regard to Eagle County's water resource carrying capacity.

COLORADO FOREST ACTION PLAN

- Improve resiliency of critical water structure.
- Sustain or restore fundamental ecological functions for watershed health.

WILDFIRE RESILIENCY

RESILIENCE PLAN ACTIONS

- Build community equity, trust, and civic engagement.
- Ensure the health, safety, and well-being of all community residents, visitors, and workers during and after a disaster.
- Support frontline communities in preparing for and recovering from extreme weather events.

COLORADO FOREST ACTION PLAN

- Increase pace and scale of wildfire risk reduction efforts.
- Restore and maintain resilient landscapes and biodiverse ecosystems.
- Utilize fire as a forest management tool to reduce future risks (prescribed burns and managed fires).
- Improve the understanding of the role fire plays in Colorado's ecosystems, including the need for using prescribed and managed wildfire as tools.

PLANNING FOR THE FUTURE

- Conduct a Climate Impact Study with study sites in Vail, Avon, and Eagle to provide analysis of the future climate risks posed to these three regions in Eagle County.

Appendix A: Modeling for Priority Actions

The data below resulted from our 2020 greenhouse gas (GHG) modeling. The insights and GHG reduction potential gleaned from the modeling work were used by each sector team to select the priority actions in this 2020 update. Appendix A lists each of the modeled strategies that were finalized as priority actions for this report. Note a few of the priority actions have been updated by the sector teams from the assumptions that were modeled. The data below is meant to provide a high-level look at how all priority actions, taken together, will result in a 50% emission reduction from a 2014 baseline.

Priority Actions	Modeled GHG reduction by 2030 (metric tons CO ₂ e)	Assumptions for Modeling	Reference Location for Modeling within
Buildings			
Beneficial Electrification of Existing Buildings (5% per year).	183,414	Conversion of 5% of existing building stock after growth rate applied annually. 5% conversion starts in 2021. All prior natural gas usage is transitioned to HCE system. 6,373 homes already all-electric in Eagle County. 32,823 total housing units, 217 total commercial buildings.	pg. 5
For new and newly remodeled buildings, adopt "above building code" standards and incentives, and implement net zero construction requirement for new buildings by 2030. Work toward consistency across jurisdictional boundaries in Eagle County.	29,990	10% more of new building stock is Net Zero/or all-electric annually starting in 2021. (10% in 2021, 20% in 2022, etc). Ban natural gas useage or mandate net-zero for new construction by 2030. All prior natural gas use is covered by HCE territory.	pg. 5
Implement a benchmarking ordinance in Eagle County for all commercial buildings 10,000 square feet or larger.	27,599	Benchmarking for 50 largest buildings in 2022. Benchmarking for the remaining commercial buildings by 2023. Assume a 3% year over year increase in efficiency. 35% is max energy efficiency of building. No growth rate applied to top 50 buildings, but growth rate is applied to all remaining buildings over 10k sf.	pg. 5
Transportation			
2% electric vehicle penetration each year as a percentage of all registered vehicles on the road.	98,062	2% increase in registered EVs on the road, excluding diesel-powered cars and medium/large trucks and buses. 5% adoption until 2050 Just for gasoline fueled vehicles (not diesel). Vehicle stock entirely electric and diesel by 2046.	pg. 6
Implement a behavior change campaign to reduce single-occupancy vehicle commute trips by encouraging local businesses to provide incentives or establish policies to support multi-modal commuting, flexible work arrangements, and remote work at least two times per week.	72,908*	*This strategy was not modeled. Calculations were performed to determine GHG reduction potential. Assumes every working person in Eagle County does not drive their commute two times per week. 40 mile average round trip commute for Eagle County residents equals an 80 miles reduction in VMT per working person in Eagle County each week.	NA
50% of the workforce living within 5 miles of their employment center.	189,896	17.5% of people are assumed to already live within 5 miles of work. This is based on 2019 US Census data for average commute time and mode of transportation: bike, walk, car, or working remotely. 10% more people move within 5 miles of work annually 2021-2030 until remaining 32.5% of people live within 5 miles of work by 2030.	pg. 6

Appendix A (cont.): Modeling for Priority Actions

Priority Actions	Modeled GHG reduction by 2030 (metric tons CO ₂ e)	Assumptions for Modeling	Reference Location for Modeling within
Energy Supply			
Support goal of 100% renewable energy supply for the electric sector by 2030.	100% RE by 2030 is reflected in modeling results for EV adoption and Beneficial Electrification.	Baseline assumption in all modeling, specifically impactful for electric vehicle adoption and 5% conversion of buildings to all-electric each year.	pg. 11
Analyze and develop local renewable energy resources through waste-to-energy, methane capture, or digestion.	28,713*	One option for waste-to-energy systems was modeled. Methane Digester beginning in 2022. Digester can process 20% of organics in 2022, 40% in 2023, etc until all organics are digested in 2026. Assumes natural gas output will be used in commercial building applications. *Note the emission reduction potential included in this chart does not reflect the avoided landfill emissions realized from this strategy. This is to ensure no double-counting between the Materials Management organic diversion emission reduction.	pg. 12
Consider heat waste utilization and/or renewable energy technology to power district scale snowmelt systems.	Not Modeled	Displacement of all natural gas use for snowmelt in core commercial centers. This strategy was not modeled.	NA
Reduce methane leakage through natural Gas system efficiency.	Not Modeled	BHE 50% Decrease by 2035 through pipeline replacement and efficiency work. This strategy was not modeled.	NA
Materials Management			
Priority Action: 80% Organics Diverted by 2030. *Modeled Action: 100% Organics Diverted by 2030.	37,310*	10% conversion to compost annually starting 2021. Includes GHG reduction potential for diversion of yard waste and cardboard from landfill.*	NA
Priority Action: Divert 100% of all recoverable construction and demolition (C&D) waste from the landfill by 2030.* Modeled Action: 100% of Construction & Demolition waste diverted by 2022.**	39,903*	*Recoverable materials will be determined and regularly updated as needed by the Materials Management Task Force. **All recoverable construction & demolition (C&D) waste is diverted beginning in 2022. Assumes 40% of current landfill is C&D waste.	NA

TOTAL 2030 BUSINESS AS USUAL EMISSIONS: 1,100,235 MTCO₂e

TOTAL GHG REDUCTION POTENTIAL FROM PRIORITIES IDENTIFIED ABOVE: 707,795 MTCO₂e

PERCENT REDUCTION FROM 2030 BUSINESS-AS-USUAL: 64%

Appendix B: Literature Cited

- Brandt, N. E., Brazeau, A. G., Browning, K. C., Meier, R. M.* 2017. Carbon Sequestration in Colorado's Lands: An Integrated Spatial & Policy Analysis. University of Colorado Boulder. <https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/Colorado/Pages/CarbonSequestrationinColoradosLandsAnIntegratedSpatialAndPolicyAnalysis.aspx>
- Colorado Energy Office. 2020. GHG Pollution Reduction Roadmap. <https://energyoffice.colorado.gov/climate-energy/ghg-pollution-reduction-roadmap#:~:text=Sets%20Colorado%20statewide%20goals%20to,emissions%20that%20existed%20in%202005.>
- Colorado Energy Office. 2020. Rebuild and Re-Energize: Local Government Toolkit for a Resilient Clean Energy Future. <https://storymaps.arcgis.com/stories/786dca153b1f4275946530d56ccdcd4>
- Eagle County. 2020. The Eagle County Community Resilience Plan. <https://www.resilienteaglecounty.com/>
- Eagle County Government and Clean Energy Economy for the Region. 2016. Eagle County Energy Inventory for the year 2014. http://www.eaglecounty.us/EnvHealth/Documents/General/Energy_Inventory/
- Eagle County Government and Clean Energy Economy for the Region. 2019. Eagle County Energy Inventory for the year 2017. https://www.walkingmountains.org/wp-content/uploads/2019/11/Eagle-County-Energy-Inventory-2017_FINAL-1.pdf
- Eagle County Government and Walking Mountains Science Center. 2016. Climate Action Plan for the Eagle County Community. <https://hub.walkingmountains.org/download-the-climate-action-plan-for-the-eagle-county-community>
- Intergovernmental Panel on Climate Change (IPCC). 2018. Global warming of 1.5°C. <https://www.ipcc.ch/sr15/>
- National Resources Defense Council. 2018. Beneficial Electrification: Plug in for the Greener Grid. <https://www.nrdc.org/experts/vignesh-gowrishankar/beneficial-electrification-plug-greener-grid#:~:text=In%20part%2C%20beneficial%20electrification%20describes,buildings%2C%20equipment%2C%20and%20devices.>
- US. Census Bureau. 2019. Eagle County Commuting Characteristics by Sex. <https://data.census.gov/cedsci/table?q=Eagle%20County,%20Colorado%20Employment&tid=ACSST5Y2019.S0801&hidePreview=true>
- Western Colorado University Modeling. 2020. <https://www.walkingmountains.org/climate-action-collaborative/greenhouse-gas-inventories/>



IN HONOR OF

Seth Bossung
Andy Jessen
Adam Palmer