



**EAGLE COUNTY**  
Regional Airport



# EAGLE COUNTY REGIONAL AIRPORT MASTER PLAN

## Appendix G





## **G. EAGLE COUNTY CLIMATE ACTION PLAN**





# CLIMATE ACTION COLLABORATIVE

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## CLIMATE ACTION PLAN

UPDATE  
2020

*Executive Summary*

# 50% REDUCTION OF EMISSIONS BY 2030

## PRIORITY ACTIONS TO ACHIEVE 2030 GOAL

### ENERGY SUPPLY

- 100% renewable energy supply for the electric sector by 2030.
- Analyze/develop renewable energy resources through waste-to-energy, methane capture, and digestion.
- Heat waste use and/or renewable energy technology to power district scale snowmelt systems.
- Reduce methane leakage through natural gas system efficiency.

### BUILDINGS

- Beneficial electrification of existing buildings 5% per year.
- Adopt net zero or all-electric construction code for new buildings.
- Benchmark commercial buildings  $\geq 10,000$  square feet.

### WASTE

- 80% organics diverted by 2030. Focus on diversion of all yard waste and cardboard from landfill.
- Divert 100% of all recoverable construction and demolition waste from the landfill by 2030.

### TRANSPORTATION

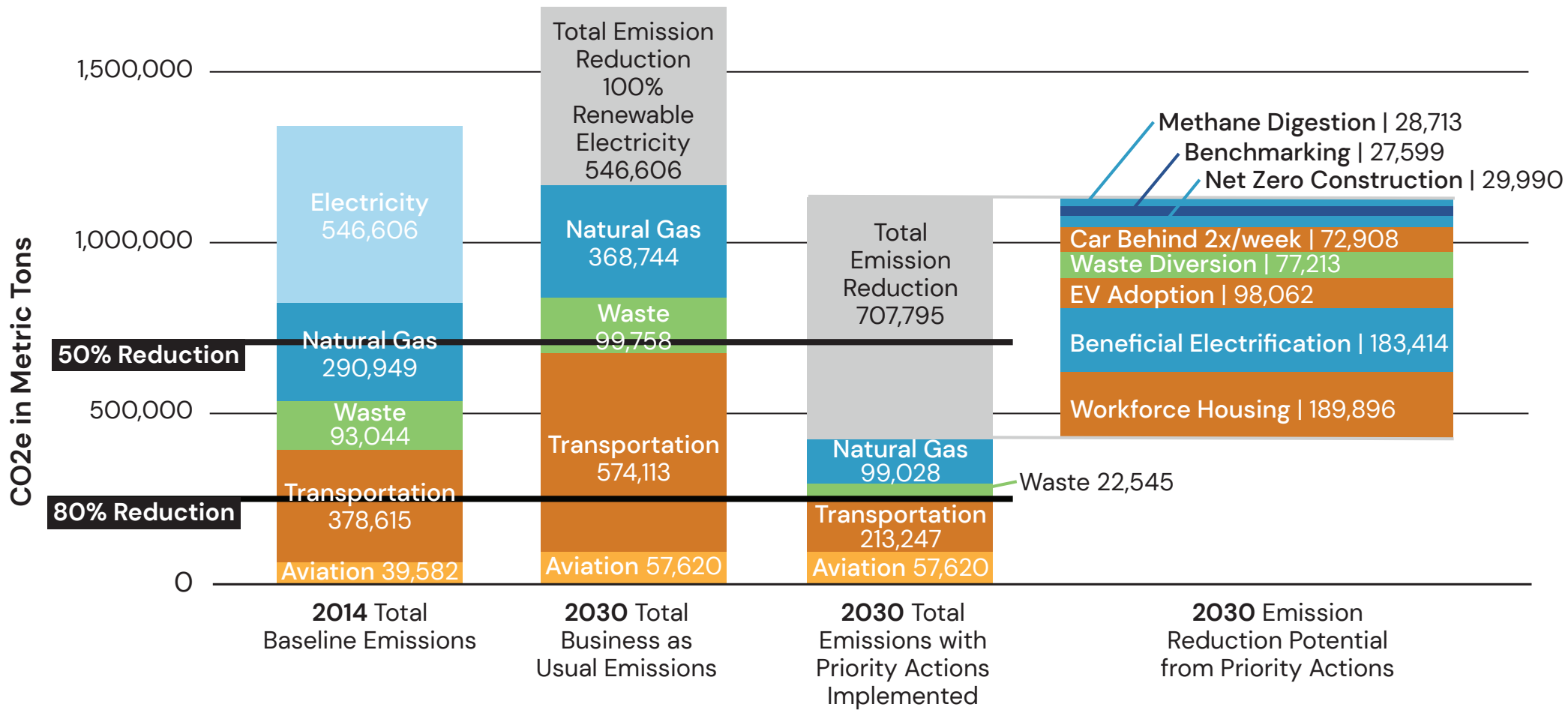
- 2% increase each year of EVs registered in Eagle County.
- Encourage/promote Eagle County commuters to leave car behind 2x per week.
- Move 50% of workforce to live within 5 miles of employment center.





## Carbon Emission Reduction Potential from Priority Actions

All numbers reported in Metric tons of CO<sub>2</sub>e



## 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.



# CLIMATE ACTION COLLABORATIVE

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## 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

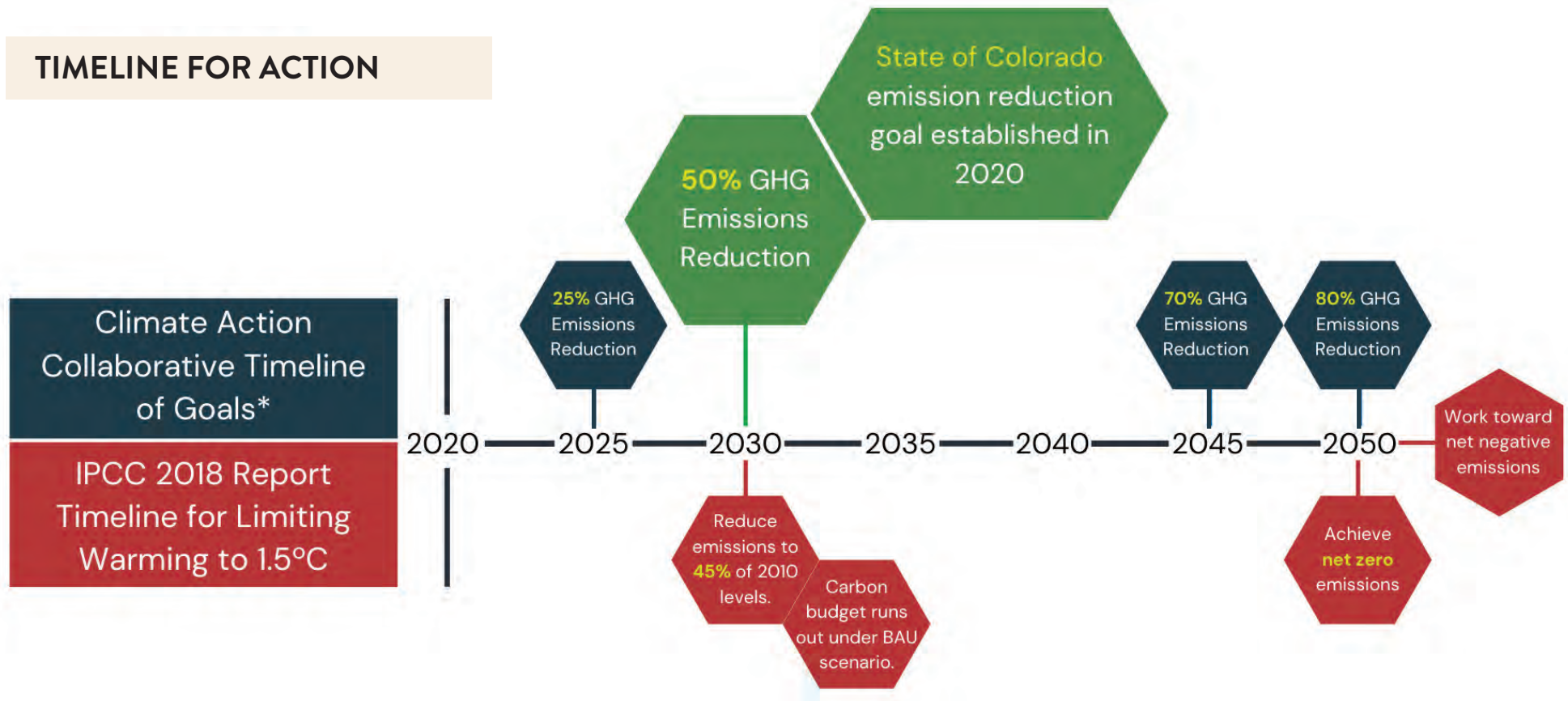


## 1.5°C IS THE TIPPING POINT

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**.

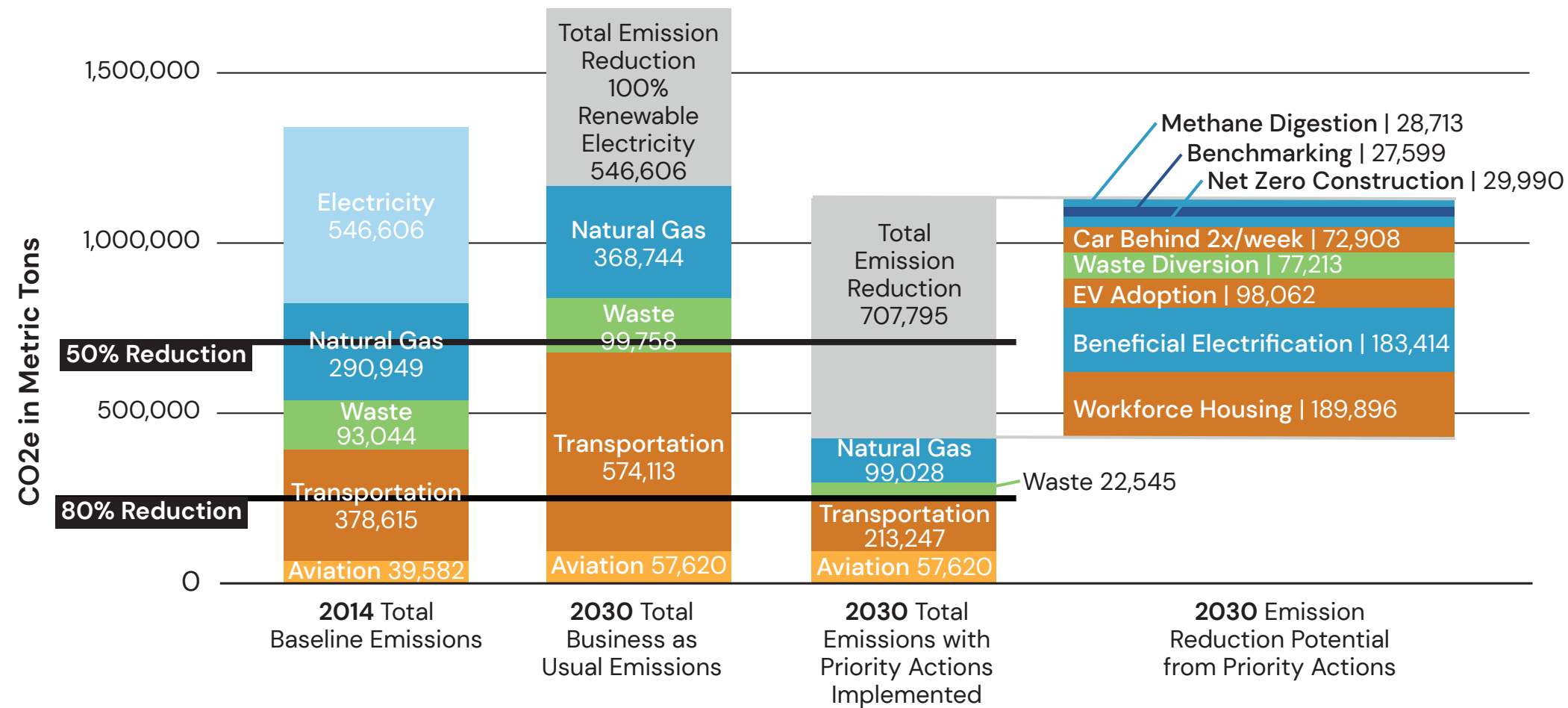
## TIMELINE FOR ACTION



\*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 CO<sub>2</sub>e



## 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

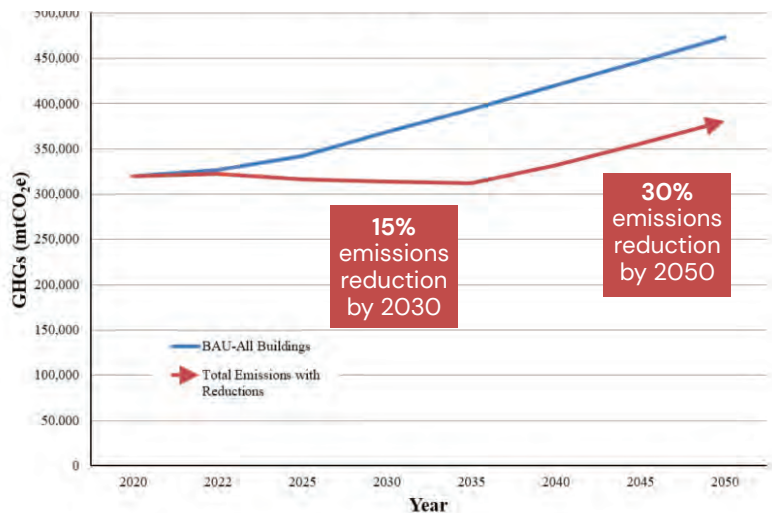
The Colorado Energy Office lists "Expand Energy Efficiency" as the number one priority out of the five most impactful actions for local government policy in mitigating GHG pollution.

### 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

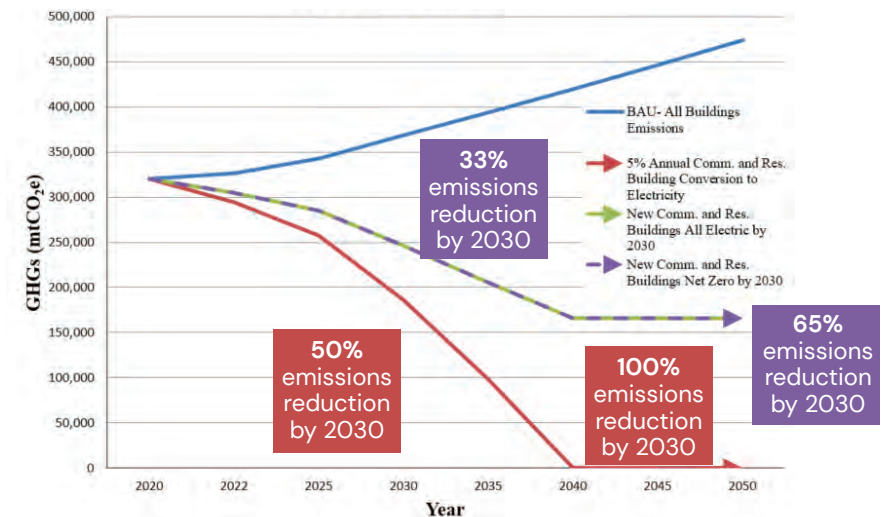
After maximizing energy efficiency in existing buildings, the next step to reducing GHG emissions from the buildings sector is replacing inefficient fuels with cleaner alternatives.

### 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



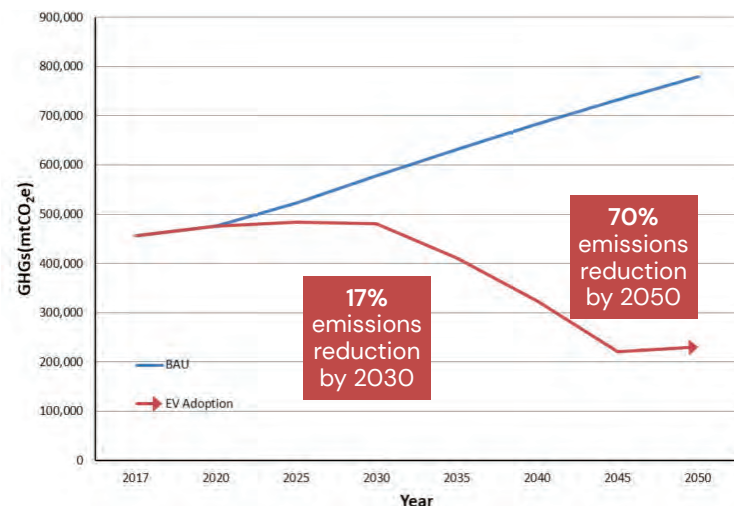
## IMMEDIATE PRIORITY ACTIONS

- ★ 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

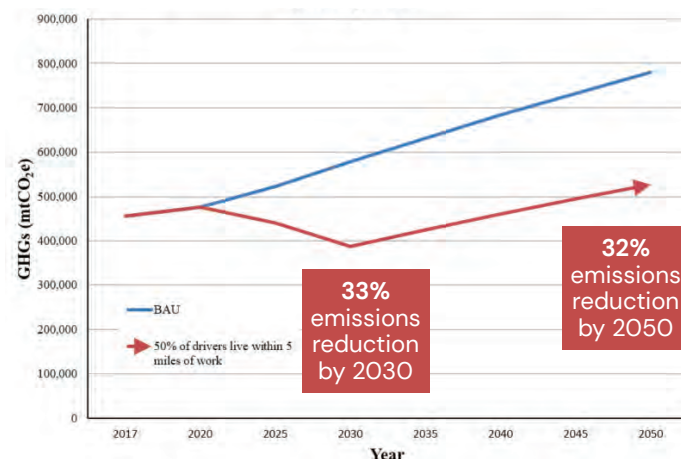
- Create a community-wide interconnected mobility system to support multi-modal transportation including park-n-rides and pedestrian and bike infrastructure to support transit ridership, complete and connected bike commuting paths and lanes, and safe and accessible sidewalks.
- Expand bus service across 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](http://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

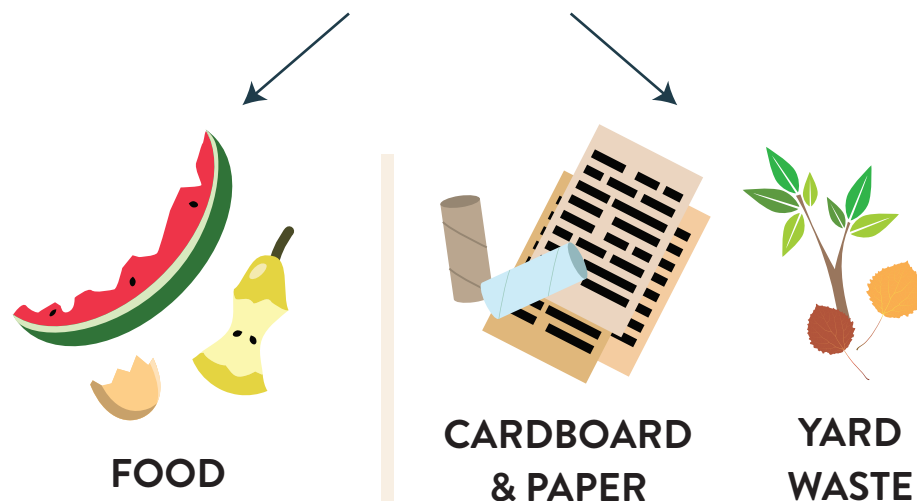
- ★ Divert 80% of organics currently landfilled by 2030.
- ★ Divert 100% of all recoverable construction and demolition (C&D) waste from the landfill by 2030 (some organic material may exist in this waste stream).
- ★ Divert yard waste from landfill by 2030 through implementation of county-wide collection 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 | Reuse             |
| Recover surplus        | Recycle           |
| Animal feed            | Compost           |
| Compost                | Methane Digestion |
| 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

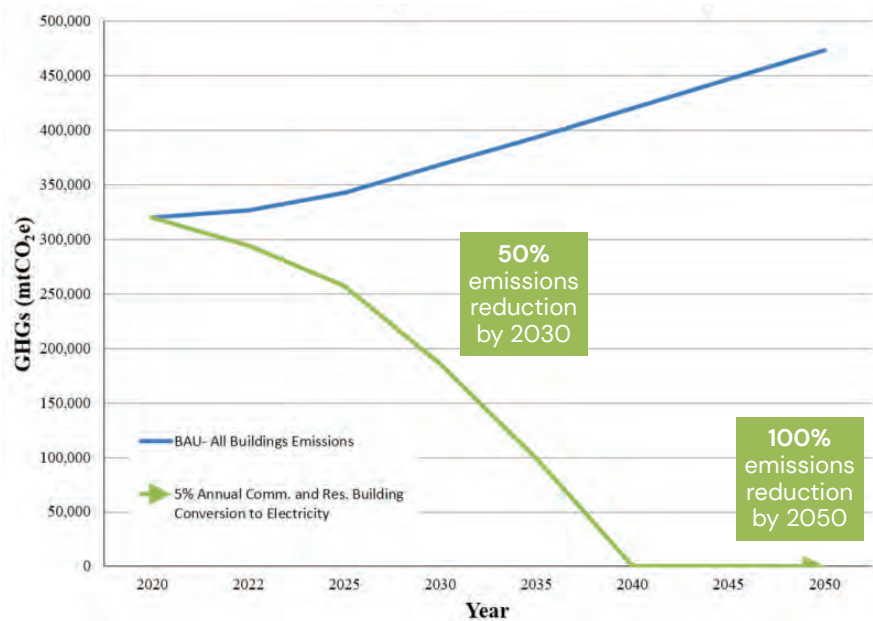
**Beneficial electrification** is a term that refers to the emissions and cost reductions that result from replacing fossil fuels with electricity. Electrification is beneficial if it reduces costs and emissions and helps improve electricity grid management. The term represents an effort to find a favorable 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

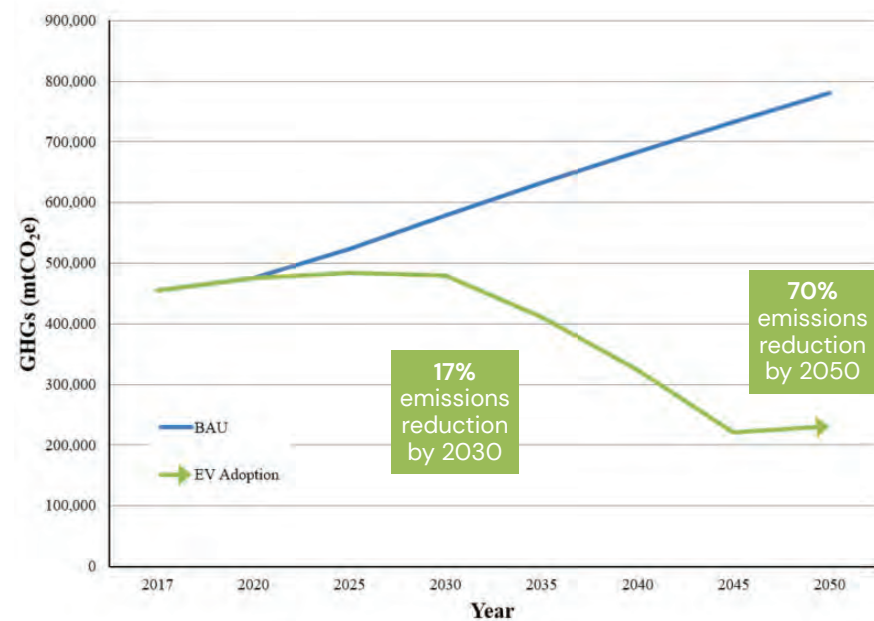


**Assumptions:** [Green Line] Conversion of 5% of existing commercial and residential properties to electricity each year beginning in 2021.



## TRANSPORTATION

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

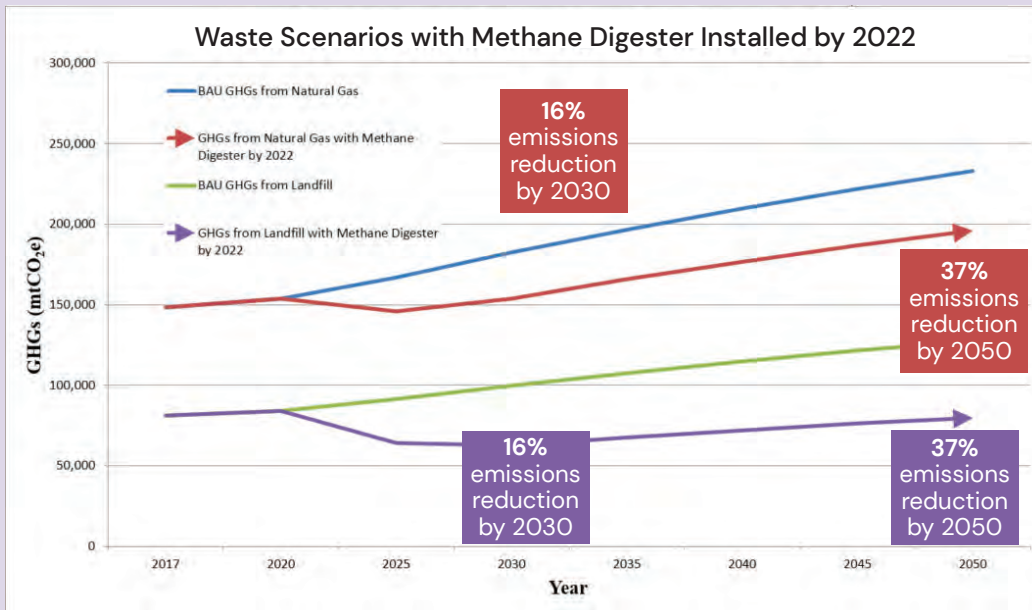


**Assumptions:** [Green Line] 2% increase in registered EVs on the road, excluding diesel-powered cars and medium/large trucks and buses. Includes emissions from EV charging.

# 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.

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## 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.

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*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 <sub>2</sub> 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 <sub>2</sub> 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.<br><br>*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.<br><br>*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.*<br><br>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.<br><br>**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 MTCO<sub>2</sub>e**

TOTAL GHG REDUCTION POTENTIAL FROM PRIORITIES IDENTIFIED ABOVE: **707,795 MTCO<sub>2</sub>e**

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



## Appendix B: Literature Cited

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# IN HONOR OF

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