



Uncompahgre Valley Climate Action Plan

A Window Into Our Future

**Written By Climate Action People
Climate Lobby Montrose
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Uncompahgre Valley Climate Action Plan

Preface

The Uncompahgre Valley Climate Action Plan began as a kernel of thought and belief of a few individuals committed to the reduction of greenhouse gases in the Uncompahgre Valley. It has grown to an understanding of the sources that contribute to GHG emissions and the issues that our community has to face to reduce GHG emissions. We will work tirelessly in our own efforts with hopes many groups/people will join us in our efforts.

Although the Uncompahgre Valley has not experienced some the more severe aspects of increasing climate change such as - increased ocean temperatures or increased nighttime temperatures above 90 degrees or catastrophic hurricanes or tornadoes- the Uncompahgre Valley has seen increased droughts leading to Aspen Forest die-offs and increasing annual temperatures recorded over 100 years in Montrose. Our climate is changing and regardless of why it is changing, our weather is getting less predictable, warmer with earlier spring run-off and less available water for agriculture later in the year.

Our climate is changing, we believe its a problem. It is undeniable is getting warmer/hotter in the Valley and those increased temperatures are affecting our ways of life negatively. We think, as a Valley, we can do something about it. We believe that if we can reduce the emissions into our air of various greenhouse gases- carbon dioxide, methane etc- there will be less emissions to trap heat in our atmosphere in our future and as result there will be a leveling off of temperatures in our Valley in 20-30 years. We could sit by and hope climate change will not get worse. But no, We believe that it is better to try to do something now rather than to continue to conduct business as usual.

As an all volunteer group Citizens Climate Lobby Montrose CO realizes the large task ahead. We hope to draw from many resources including local governments, businesses, civic groups, non-profits and people with many varying backgrounds, to develop a plan that many can embrace and strive to work towards. This Climate Action Plan is just a start of the evolving effort that will grow with the input and energy of partners working together and separately to reduce GHG emissions.

We are asking to partner with individual entities to work on this Climate Action Plan. With partners we hope we can demonstrate potential synergies working together, but we realize climate action projects may be an individual effort- building a solar field or installing an electric retrofit to an old building. Partnerships hopefully will be created that produce greater efficiencies, broader project goals and to make grant opportunities more attractive to funders.

In the end- 25 years from now - we hope that greenhouse gas emissions can be severely reduced and we start to see average annual temperatures level off instead of continually rising.

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Climate change is truly changing our weather patterns in the Uncompahgre Valley as the weather systems are less predictable and may become more severe. The average temperature in Montrose has increased over 3.6 °F over the past century (NOAA data collected in Montrose) with droughts in 1900, 1950, 1970 with the most extreme drought in 2017-2021. The Valley has experienced 35% fewer days with measurable snowfall coupled with temperatures increasing 9.1 °F in winter (in terms of nightly low temperatures). During the summer it is hotter and drier leading to, weakened, drier forests that are more prone to destructive fires. The GMUG National Forest expects that by 2060 aspen will not be able to grow in 93% of the forest where it grows now, with 97% for Ponderosa Pine Forests unable to grow where it once did by 2060 (Table 13, GMUG Draft Forest Assessment). Projected monthly average temperatures will be greater than 4.5-5 °F warmer in our summer months. With such great increases in temperatures Our agricultural community, which has already seen individual ranchers selling off their entire herds due to lack of good feed on the ground, may find that by 2050 our water resources are not sufficient for agricultural production. It should be acknowledged that with a changing warmer climate we may experience severe droughts, less water in our stream and ultimately, not enough water for domestic uses by 2060.

Already we can see Aspen forests dying at lower elevations. Fortunately for us we have not experienced extreme temperatures like they did in Arizona last year when temperatures were above 110 degrees f during the day and rarely below 90 degree at night. Our waters are cool as they flow from higher elevations, unlike water off the coast of Florida which exceeded 100 degrees killing much of the coral in the shallow coastal waters. We also have been able to avoid catastrophic wildfires like they had in California and severe storms that have flooded or destroyed large communities across the US. For now we see our forests and grazing lands functioning but under increasing stress.

We are fortunately positioned in a protected valley ringed by, for now, snow capped mountains. Our agricultural and municipal water comes to us directly through stream flow where water can be stored in reservoirs and put into pipes or canals for our use. We can and have survived some of the more serious drought conditions we have had in the past. But, It is obvious our weather patterns are changing as our winters are shorter, less severe and our spring starts earlier with peak runoff occurring earlier each year leaving less water for us to use. We got a reprieve last year with good snowfall in the winter, but that might not happen again so soon. If our valley continues to warm as it has over the last 100 years will we be able to maintain our present way of life? Will the changing climate make it too difficult to farm or ranch? Will water become so scarce that we have to ration water in Montrose and Delta? These are thoughts you may not have ever had, but it is time to start considering alternatives.

Climate change is a real fact of our lives in the Uncompahgre Valley. Manmade or not the temperatures are rising, its getting drier and the ecosystems, we are proud to be part of in our communities, are stressed, weakened and by 2050 may shrink to 5% of their former selves.

What is it that we can do to slow climate change as individuals, and as a community?

Atmospheric scientists have shown that carbon dioxide ppm has risen steadily over time, but has sharply increased since industrialization of our world. If we cannot change natural climate change, maybe we can reduce the amount of pollutants in our air which are trapping heat and making our world warmer. We can work together to reduce the amount of CO₂, methane and other climate changing greenhouse gases. Our efforts do not need to be life altering, but if we don't change our lives will be altered.

What causes these pollutants to end up in our air and is there a way to slow that process and even reverse the pollution of our atmosphere? Will that slow down the warming of the globe and help us to stabilize our climate again?

These are the central tenets of this climate action plan. We believe that by reducing the greenhouse gas pollution of our atmosphere we can begin to slow the warming of our globe, our country and our valley.

Climate Action Plans

Many communities, Counties, and States have recognized that climate change is a serious threat to their ways of lives. They have looked back at records and have seen temperatures creeping up steadily over a century, they have seen their weather become much less predictable with storms much more violent damaging property across a broad area.

They reacted similarly and gotten together to discuss the issue of climate change and how it is affecting their lives. Many groups recognized that climate change is not going away and is in fact getting worse. Realizing Climate Change is a problem they worked in their community to gather facts, researched historical records, consulted with local and regional resources to compile an overall understanding of how climate change is affecting them. The result has been groups have been writing Climate Action Plans to address the issues related to climate change and how they can slow climate change and the increased temperatures associated with it. Many have recognized that GHG emissions are the central driver of climate change.

This is our mission with this document. To develop with our community a climate action plan for us that we can implement to reduce our GHG in the Uncompahgre Valley. To start we needed help from other people and CAP's. We have read and thought about several Climate Action Plans from across the State. We will be adapting parts of some of them, but will draw mostly from the State of Colorado's Greenhouse gas Roadmap series, San

Miguel/Ouray Climate Action Plans and our own planning efforts to start the conversations. We hope to have conversations with many entities to identify key sectors of their socio-economic structure where we can target processes that emit the largest amounts of GHG and develop plans to reduce the GHG from these processes. We feel there are 8 sectors (Eco-Action CAP) in our society that can be separated with specific projects identified to reduce GHG in each sector.

These sectors include **Energy production**, **Transportation**, and **Building energy** use as the 3 highest emitters of greenhouse gas in Colorado. We recognize additional sectors to be considered include **Waste**, **Food&Material Use**, **Water** and **Land Use**.

To bring all these sectors together in a cohesive umbrella we have also adopted a sector from Eco-Actions CAP called **Community Engagement and Policy**. This sector will be the nexus where most of our efforts will flow towards informing local governments and the public about climate change, provide information and opportunities for local governments and the public to seek funding to help transition to the new electric infrastructure and finally to maintain communication between a group of committed individuals, organizations and groups in the pursuit of the reduction of greenhouse gas emissions in the Uncompahgre Valley.

Our climate action plan will build off the backs of many people before us that have researched, tested, published and discussed many facets of our changing climate. Our plan will reference our climate discussions in the southwest, our state, our local region and finally the Uncompahgre Valley. As a point of reference the Uncompahgre Valley begins south of Colona and ends at the confluence between the Gunnison and Uncompahgre Rivers in Delta.

Southwestern U.S.

(This section was adopted from the State of Colorado's GHG Roadmap)

Regional and State Effects of Climate Change

The Southwest region of the US has five main issues that the region is experiencing or will experience in the near future, including drought and aridity threats to water sources, food and fiber production, human health and demographic migration, and wildfires. Higher temperatures have intensified drought and will lead to an arid future in which water supplies will be impacted and supply-demand will become imbalanced.

The region will be affected by heat waves that cause profound and cascading impacts. Additionally, continued drought and water scarcity will make food and fiber production more difficult in the Southwest as extreme heat events will increase animal stress and reduce crop quality and yield, resulting in widespread economic impacts. Wildfires are a significant issue in the Southwest. They have become larger, more severe, and more frequent, and they place people, economies, ecosystems, and water resources at risk. Lastly, with all previously mentioned risks come displacement. Extreme heat, drought, flooding, and wildfire activity negatively impact the physical health of Southwest citizens and may result in increased climate migration.

In Colorado, Statewide average annual temperature have been increasing as 1912 was -1.6°C (-2.8°F) cooler and 2012 was 2.1°C (+3.7°F) warmer than the average annual temperature.

Last year was [the hottest ever recorded](#) in the Southwest, and the effects were devastating. Rising temperatures are driving more extreme weather, from [heat waves](#) to [floods](#) and [droughts](#). And scientists say the impacts will only get worse because humans keep putting more greenhouse gasses into the atmosphere, mainly from burning fossil fuels like coal, oil and natural gas.

Thousands of peoples' lives are disrupted or harmed by extreme weather, and the economic costs are enormous. Weather disasters in the United States last year [inflicted at least \\$92.9 billion in damages](#), according to the National Oceanic and Atmospheric Administration.

Colorado Demographics, Energy Production and Energy Use

The State of Colorado is a very diverse state and crafting a climate action plan across the state will have to take into account Colorados riches along with the problems that go with those riches. The Uncompahgre Valley Action Plan will also have to take into account its riches and associated problems to be assured the steps we take will be meaningful. Below a review of the State of Colorado demographics, economy driving habits, natural resources and renewable energy potential will help us to understand where we stand currently, to recognize the transition away from carbon fuels, which may be difficult and people may be reluctant, but ultimately the transition must occur away from carbon fuels to renewable energies

Colorado has 5.8 million people with a GDP of \$484 billion. People drove 53,840 million miles last year. There are 31.8 million acres in farms in Colorado. As a state we generated 4,649 thousand MWh (63.6% from natural gas and coal and 36% from renewable resources). Most homes are heated using natural gas (65%), electricity (27%) and propane (5%). Our rivers and dams produce 76,000 MWh of energy. Utility scale solar, wind and geothermal produce 1586 thousand MWh and small scale solar produces 135 thousand MWh of energy each year. Unfortunately we still had carbon dioxide emissions totalling 85.4 million metric tons in 2021.

[Colorado ranks among the top 10 states in total energy production.](#)

Colorado ranks among the top 10 states in total energy production.⁶ Nearly 9 in 10 Colorado residents live in metropolitan areas at the base of the Range, along the eastern edge of the Rocky Mountains, leaving much of the state's mountainous areas and plains sparsely populated. In the urban corridor from Fort Collins to Colorado Springs the transition to renewable energies may be more difficult. The 4 million people who live there and need essential services and energy is not an easy answer. They will not be able to switch to 100% renewable energies quickly.

Colorado's per capita energy consumption is lower than two-thirds of the states. In 2020, the industrial sector was Colorado's leading energy consumer, accounting for 29% of the state's total energy use, followed closely by the transportation and residential sectors at 26% each and the commercial sector at 19%.¹⁷

Carbon based fuels

Colorado is the fifth-largest crude oil-producing state and accounts for almost 4% of U.S. total crude oil output. The state has nearly 4% of the nation's economically recoverable crude oil reserves.⁹ About four-fifths of Colorado's crude oil production comes from Weld County.

The transportation sector accounts for more than four-fifths of all petroleum consumed in Colorado, followed by the industrial sector with about one-eighth.

Colorado has the eighth-largest natural gas reserves of any state, accounting for almost 4% of the U.S. total. Colorado's marketed natural gas output more than doubled from 2000 to 2022. Colorado is home to 11 of the nation's 100 largest natural gas fields.

Production of coalbed methane declined about 50% from 2010 to 2021, however, Colorado remains the top coalbed methane-producing state, accounting for almost two-fifths of U.S. production in 2021. The San Juan and Raton Basins, located in the southern part of the state, produce nearly all of the state's coalbed methane.

The residential sector is Colorado's largest consumer of natural gas, accounting for about three-tenths of the state's natural gas demand, followed by the electric power sector with one-fourth.⁷³ About 7 out of 10 Colorado households use natural gas as their primary home heating source.⁷⁴ Consumption of natural gas for electricity generation has declined since 2020, but increased by 11% in 2022, as natural gas prices declined.^{75,76,77} The state uses only about one-fourth of the natural gas it produces.^{78,79}

Colorado ranks eighth among the states in estimated recoverable coal reserves.² Colorado's coal is used almost entirely for electricity generation, but the market for the state's coal has decreased and several Colorado mines have closed as the share of U.S. electricity generated by coal-fired power plants continues to decline.

Coal-fired power plants accounted for 36% of the state's total electricity net generation in 2022, down from 68% in 2010. However, in 2021, Colorado's electricity net generation from coal-fired plants increased to 41%, as higher natural gas prices made coal-fired generation more economical.

Colorado's power plant operators plan to continue to replace coal-fired capacity with generating capacity fueled by natural gas and renewable energy sources due to economic and regulatory considerations.^{105,106,107} By 2029, 2,549 megawatts of coal-fired generating capacity in Colorado is scheduled to retire.¹⁰⁸ Renewable energy provided almost two-fifths of the state's electricity net generation in 2022. Since 2010, Colorado's renewable electricity net generation has more

than quadrupled. In 2022, wind energy provided 28% of the state's total electricity generation, followed by natural gas with 26%. The rest of Colorado's in-state electricity generation was provided by utility- and small-scale solar, and hydroelectric power.¹⁰⁹

Colorado does not have any nuclear power plants.¹¹⁰ The state does have some uranium deposits, but no uranium has been mined since 2005.^{111,112} A proposed uranium mill in western Colorado is still being considered.¹¹³

Colorado uses less electricity per capita than three-fourths of the states.¹¹⁴ The commercial and residential sectors are the largest consumers of electricity in Colorado, and together account for about three-fourths of the state's total power use, followed by the industrial sector at just over one-fourth.¹¹⁵ About one in four Colorado households use electricity as the main home heating source.¹¹⁶ Typically, total electricity consumption exceeds in-state generation, but in 2021 in-state generation increased by 5%, slightly exceeding electricity consumption.

Colorado is in a transition phase from carbon based fuels, which it has a lot of, and renewable energy, which has a lot of potential for. Utility scale solar sites are being built across the state including in Delta County with Garnet Mesa's 80 MG solar field scheduled to begin construction in 2024.

The transition to renewable energies is taking place across the state. Energy companies, like Guzman Energy who sell energy to DMEA, are also turning more to renewables. Guzman's energy profile was thought to be near 30%, but is now considered to be closer to 40% with the purchase of interest in several utility scale solar fields. That leaves 60% of the energy Guzman sells to DMEA will be generated from carbon based fuels. Reflecting back to DMEA's previous energy company- Tri State- their energy profile had less than 5% renewables so there advances being made across the state that are small, but significant.

The transition to a carbon free economy is in transition. Colorado has vast carbon resources and an associated economy that represents a huge hurdle for the renewable energy transition. It will take time, but as you see many of the parts to the transition puzzle are already present and ready to be deployed.

Colorado approach to management of GHG

Colorado has adopted a whole-of-economy approach to tackling GHG emissions and mitigating its contribution to global warming, setting science-based targets that align with those established by the Paris Agreement in 2015. From first tracking emissions in 1990, to establishing an RPS in 2004, and executive orders in 2008 and 2017 establishing the first GHG emission reduction goals with 2005 as a standard to compare to and go below..

Partly, as a result of the State of Colorado's planning and developing regulations, renewable energy generation in Colorado has grown from 22% in 2019 to 37% in just three years. By 2029

we will exceed 80% renewable energy on our grid, and by 2031 we will close our last coal-fired power plant - replaced by low-cost renewable energy and battery storage.

In addition, we have been able to manage this transition while keeping electric utility rates below the national average, and achieving the fifth most affordable household energy. We need climate action that saves people money by reducing our energy consumption and reliance on fossil fuels; reduces emissions and saves people money by providing more housing close to jobs and downtowns; grows new clean energy jobs for Colorado; curtails pollution and improves public health; assists communities and workers dependent on traditional fossil-fuel industries to transition effectively; and ensures disproportionately impacted communities— and all Colorado communities— share in the benefits of these efforts.

Governor's GHG Roadmap Executive Summary

By December 2022, more than 95% of the Near Term Actions identified in the first Roadmap were complete, along with dozens of other policies and programs not even considered in the Roadmap.

In February 2022, Colorado utility regulators approved a proposal to add 560 miles of high-voltage transmission lines in the Eastern Plains, which includes the large population cities of Denver and Fort Collins.^{[119](#),[120](#)}

Colorado currently has more than 1,750 public access charging stations with over 4,000 charging ports, ranking seventh among states.^{[123](#),[124](#)} Colorado is 1 of 13 states that adopted the Zero Emission Vehicle (ZEV) program.^{[125](#)} The ZEV program requires automakers to sell a specific number of no or low-emissions vehicles and invest in clean technology.^{[126](#)} In March 2023, Colorado released the 2023 Colorado EV Plan, with a goal to increase the share of EV sales to at least 70% of new vehicle sales by 2030.^{[127](#)}

Renewable energy

In 2022, renewable sources of energy accounted for 37% of Colorado's total in-state electricity net generation. Wind power accounted for the largest share of Colorado's renewable electricity generation at 75%, followed by combined utility-scale (1-megawatt or larger) photovoltaic and small-scale (less than 1 megawatt) solar at 17%. Conventional hydroelectric power accounted for 8% and biomass less than 1%.^{[128](#)}

Colorado has significant wind energy resources on its eastern plains and mountain crests and ranks seventh nationwide in installed wind power generating capacity.^{[129](#),[130](#)} The state's use of wind power was four times greater in 2022 than it was in 2010.^{[131](#)} In 2022, one new wind power project added 145 megawatts of capacity, bringing Colorado's total wind generating capacity to 5,136 megawatts. An additional 380 megawatts of wind power capacity are scheduled to come online by the end of 2024.^{[132](#),[133](#)}

In 2022, Colorado ranked seventh nationwide in installed wind power capacity.

Colorado has substantial solar resources, especially in the south near the New Mexico border.¹³⁴ In 2022, Colorado ranked 11th among the states in utility-scale solar power-generating capacity with 1,294 megawatts installed. An additional 1,722 megawatts of solar power capacity is scheduled to be operating by the end of 2024.^{135,136} Small-scale, customer-sited solar power generating systems (less than 1 megawatt in capacity) continue to grow and accounted for about two-fifths of the state's total solar generation in 2022.^{137,138}

Colorado has 69 mostly small hydroelectric generators, ranging in size from 500 kilowatts to 180 megawatts, with a total installed capacity of 1,271 megawatts.¹⁴⁴ According to the U.S. Bureau of Reclamation, the state has the potential to develop more than 30 new small hydropower projects using existing infrastructure.¹

Colorado has a number of hot springs, and studies indicate that the state has significant geothermal energy potential.¹ Currently, there are no utility-scale projects that generate electricity with geothermal energy.^{158,159,160}

In 2004, Colorado became the first state with a voter-approved renewable portfolio standard (RPS). The legislature amended the RPS several times and as of 2020, the RPS requires 30% of electricity sold by investor-owned utilities to be generated from renewable energy sources, with 3% from small-scale distributed generation. Separate requirements apply to municipal and cooperative electricity suppliers, depending on their size.¹⁶¹ Xcel Energy and Black Hills Energy, the state's two largest investor-owned utilities, have met this 30% requirement.^{162,163}

In 2019, Colorado's governor proposed a roadmap for 100% of the state's electricity generation to come from renewable resources by 2040.^{164,165,166,167} In January 2021, Colorado released its Greenhouse Gas Pollution Reduction Roadmap detailing how the state plans to reduce its greenhouse gas emissions by 26% from 2005 levels by 2025, 50% by 2030, and 90% by 2050.¹⁶⁸

GHG Long Term Tracking and Modeling

The State has been tracking GHG emissions with a reference point of 2005. The emissions emitted in 2005 are the baseline for all future efforts to be compared due with goals of meeting the emissions from that year and steadily decreasing GHG emissions by significant amounts as efforts and projects are initiated. Below it can be seen that by 2020 the State has reduced GHG emissions by 12.2%. This is significant as a trend towards decreasing emissions is visible and obvious. More specifically, it can be seen that overall energy production and use also reduced GHG emissions by 15.6% relative to 2005 with the largest reduction occurring in electric power generation of a 28.7% reduction in GHG emissions. Unfortunately, in the industrial, transportation, and oil&gas sectors GHG emissions actually rose.

Table 1: Historical Statewide GHG Emissions by Sector: 2005-2020 (MMT CO ₂ eq).							
Sector	2005	2010	2015	2020	2005-2020 % reduction	2020 % of whole	2005 % of whole
Energy	126.4	137.3	116.4	106.7	-15.6	82.8	86.1
ElectricPower	41.8	41.3	38.4	29.7	-28.7	27.8	33.0
RIC	24.2	26.2	25.7	25.9	+6.9	24.3	19.1
Transportation	29.1	28.2	25.7	25.9	+8.4	23.5	23.0
N Gas&Oil	22.1	31.2	21.4	24.0	+8.4	22.5	17.5
Coal	8.7	10.1	2.9	1.7	-80.6	1.6	6.9
NE Fossil Fuels	0.5	0.4	0.5	0.4	-17.1	0.4	0.4
Agriculture	13.7	14.0	15.0	15.4	+12.3	11.9	10.8
Industrial	2.7	3.5	4.6	4.4	+66.1	3.4	2.1
Waste	4.0	2.5	2.6	2.4	-31.7	1.8	3.1
Total	146.8	157.3	138.6	128.9	-12.2		
From 2023 Report to the Legislature							

Future projections based on modeling predictions show continued progress towards 100% reduction in GHG emissions as the current policies and projects are implemented. Goals to achieve 100% reduction are not projected to be met by 2050. Overall the estimate is closer to 70% which is well short. On the other hand, electric power generation is predicted to achieve

95% of the goal with only 2.1 MMT of CO2 emitted down from 41.18 MMT CO2 emitted in 2005. The biggest shortfall is estimated to be in the transportation sector at a 58% reduction in CO2 emissions.

Table 2: Projected Statewide GHG Emissions by Sector: 2025-2050 (MMT CO2eq).									
Sector	2025	2030	2035	2040	2045	2050	2005	% reduction	% of whole
Energy	90.69	53.93	39.14	28.12	23.68	22.37	126.4	-83%	49%
Electric power	25.75	7.45	3.59	1.94	2.05	2.11	(41.18)	-95%	9.4%
RIC	22.18	14.86	9.48	4.97	3.51	3.34	(24.23)	-86%	14.9%
Transportation	28.02	23.7	19.22	15.33	13.02	12.49	(29.3)	-58%	55.8%
N Gas & Oil	23.98	13.87	7.28	6.14	5.13	4.38	(22.2)	-80%	19.5%
coal	0.86	0.64	0.71	0.73	0.71	0.75	(8.67)	-92%	3.4%
Agriculture	16.29	16.54	17.02	17.20	17.32	17.40	13.7	+27%	38.4%
Industrial	4.81	3.62	2.72	2.41	2.28	2.46	2.66	+50%	5.4%
Waste	2.82	2.77	2.83	2.90	2.93	2.96	4.02	-27%	6.5%
Total	114.6	76.9	61.7	50.6	46.2	45.2	146.8	70%	
State target	108.8	73.4	51.4	36.7	14.7	0			
gap	6.0	3.5	10.3	13.9	31.5	45.2			
% below target	16%	5%	11%	13%	24%	30%			

These numbers, while illustrating significant shortfalls, do not tell the whole story. These numbers are built on policies and projects that have been created and are or will be

implemented in ensuing years. The predictive model does not take into account policies and projects that will be created, drafted, adopted and initiated in 2025-2030 and even 2050.

Recommendations on State of Colorado's future legislation

The State has done some long term planning in its analysis of present and future GHG emissions and the laws that have been passed that help to decrease GHG emissions. Below are lists of proposed policy changes for 2024 and future policy changes that will further reduce GHG emissions that were not taken into account in the modeling of future reductions of GHG emissions. Beyond those listed below there will be new policies that will organically be created as new opportunities or threats are identified.

Colorado State Regulations and Policies Priority Actions for CY2024

Utilities

Update Clean Energy Planning for 2040

Reform Distribution System Planning for New Electric Loads

Modernize Clean Energy Permitting and Siting

Pursue District Heat, Geothermal, or Targeted Electrification Projects to Improve Safety and Affordability of Natural Gas Distribution

Transportation

Expand and Increase Statewide Transit Service, including Front Range Rail

Expand the Zero Fare Transit Program

Encourage Land Use Policies to Build More Housing, Grow Walkable Neighborhoods, and Increase Transit Access

Buildings

Develop 2035 Clean Heat Targets

Expand Low-Income Access to Distributed Solar

Adopt Low-Energy and Low-Carbon Building Codes

Oil & Gas

Enforce Intensity Requirements for Preproduction and Production Operations

Develop Strategies for Net-GHG-Neutral Oil and Gas Development and Operations

Track and Reduce Truck Emissions from Oil & Gas Operations

Achieve Emissions Reductions from Well Plugging

Industry

Pass Midstream Combustion Rule

Establish Statewide Regulations for Carbon Management

Enable the Clean Hydrogen Economy

Expand Funding For Voluntary Industrial Decarbonization Projects

Agriculture & Natural and Working Lands

Augment Funding for Renewable Energy & Energy Efficiency Projects on Agricultural Operations

State of Colorado Actions in Development for After CY2024

Utilities

Ensure Fairness in Distributed Energy Resource Compensation

Transportation

Streamline Local EV Charger Deployment

Enact a Clean Miles Standard

Build More Complete and Connected Streets

Reduce Pollution from Urban Freight

Buildings

Develop a Strategic Plan for Electrification of Buildings and Appliances

Increase Energy Efficiency and Electrification for State Affordable Housing Programs

Extend GHG Reduction Targets for Existing Large Buildings

Expand On-Bill Financing for Building Energy Improvements

Accelerate Heat Pump Deployment for Access to Heating and Cooling

Oil & Gas

Study Alternative Uses of Oil & Gas Wells

Industry

Expand Methane Regulations for Landfills and Coal Mines

Develop a Statewide Industrial Decarbonization Strategy

Reducing Waste

Circular Economy, Renewable Energy Decommissioning, and Composting

Lead a Regional Strategy on Direct Air Capture (DAC)

Agriculture & Natural and Working Lands

Expand Methane Emission Reductions from Agricultural Operations

Expand Renewable Energy Development and Transmission on State Lands

Regulate the Production and Use of Biochar

Implement the Natural & Working Lands Strategic Plan

Secure Permanent Funding for Soil Health Program

Extend Existing Tax Incentives for Beetle-Killed Wood

Multi-Sector/Cross-Cutting

Maximize Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) Investments in Colorado

Deploy Emerging Technologies for Accurate Methane Emissions Monitoring

Enable Local Government Climate Action

Provide Long-Term Funding for State Programs

The State of Colorado has recognized the peril of climate change and promulgated legislation, developed plans and implemented tracking mechanisms to identify how there plans to reduce greenhouse emissions have worked and identified future possibilities to be developed and articulated to further reduce GHG emissions with new technologies or by tackling old problems with new fixes.

Western Slope of Colorado

The western slope of Colorado has many, smaller, more dispersed communities than the eastern slope. Despite the fact they are smaller doesn't mean they are unable to understand and plan for climate change and to develop climate action plans for their communities. Aspen, Gunnison, Delta County and San Miguel/Ouray County have developed climate action plans. The San Miguel/Ouray Climate Action Plan started back in 2009 with the Sneffels Energy Board. They finally published their plan in 2021 and have been updating it each year as data and technologies are developed.

We feel the San Miguel/Ouray (SM&O) Climate Action Plan is very well developed and is a good format for our volunteer group to follow- at least in part. SM&O have developed very specific climate emission reductions for each of their sectors and are closely tracking those emissions. As an all volunteer group we are unable to go to that depth in our climate action planning. Our hopes are to utilize SM&O's template to develop much of our own plan. In our own plan we can identify goals and objectives as a guide for us to follow.

Ouray & San Miguel County Regional Climate Action Plan -Executive Summary

Measurable & Target-Oriented:

This plan is meant to support our community in reaching our long-term goal of a 90% emissions reduction by 2050. Our goals outlined are supported by state and federal goals and the international community's commitments that uphold the Paris Climate Agreement to "limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels."

We are focusing goals on the tonnage of GHG emissions released per sector and overall consumption of resources. Our goals & targets are aligned with Colorado's new GHG emissions reduction goals, adopted in 2019 through Colorado's Climate Action Plan to Reduce Pollution (Colorado's House Bill 19-1261), which: § Sets Colorado statewide goals to reduce 2025 greenhouse gas emissions by at least 26%, 2030 greenhouse gas emissions by at least 50%, and 2050 greenhouse gas emissions by at least 90% of the levels of greenhouse gas emissions that existed in 2005

Executive Summary Intended Use: We envision several intended uses for this document. It is meant to act as a guide for planning and implementing sustainability initiatives over the next decade across the region. We designed this plan to represent the needs and priorities of the diverse stakeholder groups across the region, and hope this document is able to balance these interests and support the effective implementation of action items. The actions within this document represent more than GHG emissions reduction potential. The CAP looks at social, economic, and environmental benefits to our community and will support non-profits, community organizations, entrepreneurs, governments, individuals, and other groups in contributing to sustainable development in the region. We hope volunteers, educators, and citizens alike will use this document to find and contribute to ongoing and upcoming projects and programs.

A Roadmap to our Sustainable Future: This CAP is our regional roadmap for reducing GHG emissions and creating a sustainable, thriving future. The plan is intended to guide policy makers, organizations, businesses, and individuals in community planning across the next decade. The plan creates a timeline for high priority, ongoing, mid- and long- term actions. We focused on high-level action items that will support the whole region in achieving our GHG emissions reduction goals while improving our social and economic conditions. A 10-Year Plan with Short- and Long-Term Goals and Recommendations... 1-, 3-, 5- and 10! While looking ahead to 2030 and 2050 goals, our CAP presents 1-, 3-, 5-, and 10- year actions and goals to balance long-term planning with ongoing high priority actionable items. We have integrated opportunities that are newly advantageous to our region including beneficial electrification, additional energy production capacity within Tri-State, the decreasing cost of solar PV systems, and a growing local food supply and distribution infrastructure. As our communities continue to experience rapid growth many of our sustainability goals are becoming more difficult to reach. The plan aims to balance the actions and programs that are reducing our emissions and the inevitable growth driving them up. As our tourism economy, population, part-time visitor and construction numbers are increasing, we need to look at collaborative, creative, and progressive strategies to reach our goals. The incremental timeframe will help to integrate short-term, high priority action items with a sustainable long term plan for our community.

A Comprehensive, Collaborative Approach: Stakeholder Engagement, Community Outreach, Analysis & Modeling: From beginning to end, the creation of our Climate Action Plan has been a collaborative process. The SEB met monthly to review progress and provide feedback. Our contributors represent a wide group of stakeholders within our region, citizens and local politicians of varying backgrounds, ages, professions, passions, and expertise, and feel this document reflects the collective intention of our community. We have gathered community input through an extensive outreach process and with the support of the SEB have integrated the priorities of our community members into the document. Moreover, as a new ICLEI member, we enter a new era of climate modeling and action assessment. Though ICLEI's ClearPath tool we join a global network of communities sharing strategies and utilizing a set of scientifically recognized GHG assessment and planning tools. We look forward to continuing our growth and learning in partnership with local and global stakeholders to best serve our community's sustainability needs.

Climate Action & Environmental Stewardship are Regional Community Values: San Miguel and Ouray County are committed to environmental stewardship and taking action to preserve and protect our climate and natural resources. Collaborative climate efforts have been the common narrative in our community since long before the creation of the SEB. Our Community has a long history of stepping up to care for our natural resources. From long-time logging prevention on our forest lands to pursuing renewable energy sources and transitioning to year-round mountain recreation economies, we have worked to preserve what makes this place so special. This strong sense of community activism presides across the San Juan's and makes it possible for the SEB to pursue our established goals.

Shared Regional Resources: Many resources in our counties are shared across jurisdictions making clean delineation of GHG responsibilities between each jurisdiction challenging. A prime example is the Telluride Wastewater Treatment Plant (WWTP), which is used by the communities of Telluride, Mountain Village, and nearby communities in San Miguel County. While Telluride is responsible for maintenance and operations of the plant, Mountain Village contributes 15% of funding, and the plant is located outside of both town limits, so associated electricity and natural gas used for operations are categorized in SMC's usage. The gondola serving Mountain Village and Telluride is another excellent example of a collaborative and shared critical resource for these closely-tied communities. Thus, while community-specific inventory values and plans are important in directing specific actions, situations like the WWTP make it clear that the region must closely collaborate toward accomplishing GHG reduction goals.

Our region also shares common challenges associated with increases in tourism, an increasing cost of living, and a shortage of affordable housing for locals. This common scenario in tourism-based economies has escalated in recent years creating an imminent need for us to collaboratively address housing needs. Much of our workforce and material goods come from surrounding communities, closely tying us to the broader Western Slope region. Providing local, affordable housing, decreases transit-associated emissions while maintaining cultural and economic viability. GHG reduction goals are absolute, not based on census population or our visitor economy, so we must include consideration of increasing stress on our resources due to visitor and tourism growth while planning reduction strategies.

Jurisdiction-Specific CAPs, GHG Inventories, and Goals: Several individual jurisdictions within the region have developed GHG Inventories, Energy Action Plans or Climate Action Plans, and goals specific to their community to direct GHG reduction actions and track local accomplishments. These community-specific plans complement the regional CAP by providing actions that are more specific to be accomplished per jurisdiction. Community-specific and municipal-specific GHG Inventories help track program and project results on a more granular level. All community-level and regionally collaborative accomplishments contribute toward reaching our greater GHG reduction goals.

Town of Telluride: Municipal and community-level GHG tracking in place; Telluride-specific CAP developed 2015, updated in 2021; target of carbon neutrality.

Town of Mountain Village: Municipal & community-level GHG tracking in place; TMV-specific CAP developed 2020; target of carbon neutrality by 2050.

San Miguel County: Municipal & community-level GHG tracking in place; target of carbon neutrality

City of Ouray: Through 2012, the City adopted an Energy Action Plan, guiding them toward implementing many actions that reduce government energy use into the future.

Ouray County: Adopted CC4CA goals and strategies.

Town of Ridgway: Ridgway encourages the use of carbon-free and renewable energy systems within the town and supports the goal of carbon neutrality for Colorado.

Town of Norwood: Adopted Colorado's previous state goals of reducing GHG emissions 20% by 2020 along with the rest of the Sneffels Energy Board.

Town of Ophir: Established the Ophir Self Reliance Committee that is working towards the goal of carbon neutrality and the Ophir Water Commission that is implementing water efficiency actions.

Overview: The Sneffels Energy Board established a baseline GHG Inventory based on 2010 data from which to track progress toward 2020 goals and beyond. Before this time, community-wide utility use and emissions were unknown, and some governments were not yet tracking their own utility use. This 2010 process established a baseline GHG Inventory and a process for tracking resource consumption and associated emissions. EcoAction Partners updates the GHG Inventory annually with available data, analyzes the results, and annually reports on progress to our communities. Our overall regional GHG emissions have decreased (See Figure 1 pg. 14) since 2010, despite an overall increase in fossil fuel consumption due to an increased economy, visitor numbers, and full-time resident population. We have successfully reduced our energy use emissions by 20% through 2020, according to our 2020 GHG Inventory analysis as seen in Figure 2 (pg. 14), as a result of decreased electricity consumption from efficiency improvements and a significant increase in renewable energy production in our electricity mix.

Climate Action Mitigates Risk and Creates Opportunities: It's no secret our climate is changing. Already we see less yearly snowfall, increased wildfire frequency and severity, and temperatures which continue to rise. Because much of our livelihood relies on our interactions with our shared landscape, these changes endanger us all. Our collective response to climate change not only mitigates risk, but creates new opportunity for residents, businesses, and visitors. Opportunities vary across sector, yet no sector is exempt. In other words, no matter how you engage with and participate in our community, this CAP provides an avenue to reduce GHG emissions, save money and improve our social environment!

Co-Benefits: Each of the actions defined later in this plan have been evaluated to determine if they provide additional co-benefits beyond GHG emissions reductions. These co-benefits include promoting equity, fostering economic sustainability, improving local environmental quality, enhancing public health and safety, and building resilience. Actions promoting equity are a targeted response to existing inequalities in our region and ensure that resources and opportunities are dispersed equitably.

Fostering economic sustainability refers to promoting sustained economic growth and reinvestment in the region. Actions improving local environmental quality have a tangible

positive impact on the local environment. Enhancing public health and safety refers to supporting local health through elements such as air, water and food quality that have significant impacts on public health and create a safer community.

Resilience means equipping our community with the ability to cope with change. Building resilience strengthens our ability to adapt to a changing climate and be flexible in a changing world with more natural disasters and weather anomalies.

Adaptation and Mitigation: Responding to a climate that is already changing requires adaptation of infrastructure, policies and societal norms in addition to mitigation strategies. Many actions listed in this plan focus on mitigating GHG emissions and simultaneously increase our resilience so we can adapt to the changes that are already happening. Both strategies of adaptation and mitigation aim to preserve the wellbeing of present and future generations in a changing world.

The San Miguel/Ouray Climate Action Plan is a comprehensive plan to tackle the issues associated with climate change. It has short-middle-and long term goals with tracking mechanisms that will help identify how the implemented projects are reducing greenhouse gas emissions while also identifying shortfalls for improvement.

The Uncompahgre Valley Climate Action Plan (UVCAP)

The UVCAP will be implemented through partnering with local governments (including school, hospital, library districts), utilities, civic organizations, non-profit groups, private businesses, and individuals. Recognizing each entity will have their own perspective on climate change, our goal is to identify actions they are already taking and opportunities for us to assist them in what they are doing to accomplish the CAP's action items. We can assist through identifying GHG reduction opportunities, helping secure funding, and providing education, outreach, and expertise. We will develop a list of the many projects in the valley that relate to the action items and GHGs, track project progress and impacts to GHG emissions.

Our chapter will contact regional entities or partners, and ask them to make a climate commitment that reflects their level of interest in reducing GHGs:

- Level 1: "This organization recognizes that climate change is happening and our temperatures are increasing in the valley"
- Level 2: "This organization recognizes climate change is a problem that threatens our quality of life, including our economy, our health, and the health of the land and water in this valley"
- Level 3: "This organization recognizes climate change is happening, is threatening our quality of life, and wants to take part in reducing GHGs to help fight this growing problem in our valley."

It is envisioned that partners will sign on to a level as their recognition of climate change. Each partner can adopt more levels and participate in various projects which reflect their commitment. Of course it is hoped that all partners adopt a level three commitment. Regardless of level, this chapter will track each partners' projects that impact GHGs.

Outreach to partners will be carried out by chapter volunteers. We envision volunteers reaching out to organizations to pinpoint influential members, and making contact with them in a one-on-one setting that offers the opportunity for discussion. An outline for discussion will be provided to volunteers that includes a brief overview of the CAP, and important points that help the contacts see its relevance and value to them and their organization. Through building relationships with other organizations, we expect to establish this chapter of CCL as a trusted source of assistance, advice, and resources when it comes to GHGs and electrification efforts.

UVCAP Goals/Objectives

Our group went through a review and prioritization process of goals/objectives from State, local and our own ideas. Below you will see a list of the items we deemed as a priority. Along with the goal/objective we have suggested projects and opportunities for

our partners to pursue that will help decarbonize the Uncompahgre Valley. Each project is grouped into one of the following Sectors to help organize our efforts. We hope to identify key projects in each sector with the bulk of projects within the most energy intensive Sectors. The energy sector is where GHG can be reduced the most. We hope to investigate all sectors adequately to address Climate Change. The projects that have been identified represent only a starting point. It is hoped that new projects will be proposed or brought to our attention and eventually added to the appropriate Sector. The list of projects is thus an organic list that will continue to grow with new projects and change with projects dropping off as they are completed. Partners hopefully will bring new ideas/GHG reducing projects to the UVCAP.

Uncompahgre Valley Climate Issues

It is imperative that many of these ideas are discussed, planned and implemented as fast as possible as the global temperature will continue to rise without efforts to slow it or stop it. As residents of the Uncompahgre Valley we can affect what we put into our air and hopefully we will reduce CO₂, methane and other GHG emissions continually through the next 20 years when we can look back and see that we are emitting less than was emitted in 2005 and hopefully much less. Our health, welfare and well being depend on our efforts to accomplish this goal. Our climate is changing and we need to reverse the emission of GHG or our climate will change us and our lives.

Community Projects/Goals/objectives, *Action Items* and *Specific Steps*

1. Adopt State of Colorado GHG reduction goals of 25% GHG reduction from a baseline set at 2005 levels for 2025, 50% for 2030 and 100% for 2050.

A. We adopt the state goals in our CAP

2. Work with local governments (LG) to adopt climate change phraseology and actions in all decisions, use a climate change lens, review decisions regarding sustainability and conservation

A. Maintain a constant relationship with LG identifying projects, opportunities and grants for LG to reduce GHG, and tracking projects that are built and their contribution to GHG emission reduction.

3 Host tables in public venues to talk with people about climate change and GHG reduction. Work to recruit non-partisan / youth / diverse players.

A. Continue and diversify education program

1. Attend more community events with educational material

2. Reach out to youth/schools others to educate and enlist

4. Work to remove barriers to renewable energy development in the land use code,
 - A. Talk with County Commissioners, Planning Board, and staff to encourage adoption of new regulations for utility scale renewable energy
 1. Suggest agricultural lands with water rights should require the developer to to elevate the solar array allowing agriculture uses but not requiring the landowner to practice agriculture.
 2. Identify properties best slated for utility scale renewable energy development.
 - a. Disturbed lands, old gravel pits,
 - b. Properties near substations with established access
 - c. Eliminate Federal Lands for consideration
 - d. Identify Properties close to population centers to reduce transmission loss of energy.
5. Participate in regional collaboration of local governments, stakeholders, and utilities to drive regional clean energy transition and GHG emissions reduction.

This seems like a project to work on down the road a bit when we have partners all aimed at reducing GHG

Energy Production and Distribution Sector

A.. Establish a local renewable energy generation target and plan to achieve it.
Use State of Colorado goals

1. *Continue to converse with DMEA to convince them to adopt new renewable energy generation strategies especially important in moving from 50% to 100% renewables after 2030.*
 - a. *Guzman Energy is key in the near term as they have a contract with DMEA to supply 80% of DMEA's energy. Guzman is increasing its portfolio of renewables and is thought to have 35- 40% at present.*

How do we get them to adopt or utilize more renewables?

 1. Encourage DMEA/Guzman to renegotiate their contract and encourage DMEA to develop more renewable, utility scale solar/wind farms.
 2. Work with DMEA and LG to identify need to develop microgrid project

b. DMEA sets up behind the meter programs to create more renewable energy

- 1. DMEA builds a solar field for green energy for the people who cannot afford solar panels. Garnet Mesa? (Expand community participation in DMEA Green program for electricity not covered by local renewable energy production.)***
- 2. DMEA partners with Guzman to create Virtual Power Plants by supplying batteries to homeowners that DMEA and Guzman can pull electricity from, and store electricity in to flatten high peak demands on the system. This reduces demand and costs for all customers while avoiding the necessity of adding more transmission lines.***

2, Support regional grid flexibility to enable a modernized renewable electricity supply.

1. Continue to work with DMEA on opportunities

- a. VPP will reduce need for large transmission line improvements as energy will be made and stored across the DMEA service area.***
- b. High Wires Act will modernize wires and require sharing of energies across established borders***
- c. Maintain list of grant opportunities to help modernize electricity supply***
- d. Suggest adoption of smart controls in VPP to control when water heater, car charging occurs in the home to flatten the electrical use curve.***
- e. Encourage homeowners to electrify their homes***

3. Incentivize and promote net-metered solar systems on residential and commercial rooftop/pole mounted locations.

a. Work with DMEA/Guzman to identify net meter contributions in reducing demand, encourage and provide incentives.

- 1. Develop VPP program to store energy on batteries sold/leased to customers for use by homeowner during blackout, but under normal conditions DMEA/Guzman can use the energy to flatten the curve. Incentive for homeowners that supply energy to flatten the curve or to divert energy to areas of blackout***
- 2. Embrace rooftop solar and incentivise small and medium scale opportunities.***

3. **Develop an appropriate fee structure for net metering that does not negatively affect homeowners economically, but that helps to take away the idea of subsidizing the rooftop smaller community.**
4. Develop local hydropower capacity (through existing dam retrofits, micro-hydro, pico-hydro, and run of the river, etc.)
Someone needs to talk with DMEA, WAPA Uncompahgre Valley Ditch to discuss possibilities.
 - a. **Solar panels covering South canal to reduce evapotranspiration while creating renewable energy.**
 - b. **Identify potential area for micro-hydro development**
- 5 Explore community solar project and microgrid resiliency.
 (See City of Delta as example)
Explore ideas for solar projects and use of microgrid to protect critical resources
 - a. **City gravel pit/land on Sunset Mesa for solar field/microgrid**
 - b. **Solar roof over WalMart/Target parking lots**
 - c. **Provide solar rooftop over charging facilities.**
 - d. **Explore the replacement of gas stations with charging stations complete with solar arrays on rooftop.**
 - e. **Provide researched information on car temperature reduction under roofs**

Building Energy Sector

1. Transition building mechanical equipment and appliances from fossil fuels to electricity through incentives, long term economics, education, outreach and building codes.
 - A. **Work with local governments to adopt latest building codes**
 - a. **Identify appropriate weatherization of existing and new homes**
 1. Use outside the wall insulation on the entire house.
 2. Work with LG to provide incentives to tack on with the Inflation Reduction Act (IRA) for people to purchase heat pumps, induction stoves, heat pump water heaters, solar systems, subscribe to solar gardens.
 3. Educate people on the use of the IRA and the rebates available for people to access at the point of purchase.
 - A. Heat pumps and installation
 - B. Weatherization
 - C. Updating breaker box
 - D. Induction Stove

E. Heat pump water heater

2. Promote/incentivize optimal control systems and thermostat settings, building automation and building performance standard tracking to couple comfort with efficiency.

A. promote building efficiencies with LG and public by demonstrating how efficient systems can be and how much money can be saved by using smart control systems

3.. Encourage renewable energy use in government buildings.

Educate ourselves on issue, find examples of government buildings using renewable energy and find out what steps they took to get there.

A. Encourage electrification of all buildings.

B. Encourage microgrid development using renewable energy backup power instead of gas generators.

4. Promote optimal building design to reduce cooling and heating needs Include Building management and use education/outreach to building trades, owners, and managers.

Reach out to building trades to assess current knowledge base and educate on new electric opportunities.

5. Integrate energy efficiency and electrification into county facility upgrade plan and install behind the meter solar to cover 100% of governments electricity use.

(See City of Delta's Public Safety Building electrification)

<https://mail.google.com/mail/u/0/?pli=1#inbox/FMfcgzGxStsqDQbmbFCtvMdcLnPHgzlh>

DOE Release Guidance Document on Space Heating Electrification for Large Commercial Buildings with Boilers

Transportation Sector

1. Increase number and location of EV charging stations.

A. Encourage LG to identify and incentivize private parties to develop EV charging stations.

B. Identify Federal/State grant monies to pursue

C.

2. Electrify fleet vehicles when viable.

Encourage LG and businesses to adopt electric vehicles.

3. Encourage more non-motorized travel (i.e. biking, walking).

A. Work with City to identify and promote bike and walking paths throughout the city

1. Place small lights to identify bike lanes to promote safety

2. Plan multiple routes around the city to access commerce

B. Promote incentives for electric bikes as commuter vehicles to reduce vehicular traffic.

C. Close streets to vehicular traffic near downtown.

D. Encouraging people to travel short distances via bicycle and e-bikes.

E. Partner with biking groups to develop program with City.

Land Use

1.. Increase carbon sequestration through planting trees and improving soil health, and through regenerative and restorative agriculture for soil carbon sequestration. These activities are critical for reducing net emissions and reducing local warming impacts.

a. Tree planting is a great community project for many ages.

b. Improving soil health info needs to be researched

c. Carbon sequestration is a new topic to be researched

2. Improve soil function and carbon sequestration through regenerative farming practices.

Waste

1. Implement large-scale green waste collection programs.

Funding Available for Waste-to-Energy Solutions for Local Communities

Food and Material Use

1. Continue to increase local food supply, distribution, and consumption. Including local programming such as community gardens, CSA's, and farmers markets.

2. Incentivize and explore innovative methods to expand the growing season, increase production, and implement alternative growing strategies (greenhouses, hydroponics, permaculture, etc.).

Work with local farmers on an agrivoltaic project that could make the farm more productive while also reducing costs with the production of solar energy
Clean Energy to Communities Program: Peer-Learning Cohort on Agrivoltaics

Water

1. Work to encourage water conservation through incentives for: xeriscaping, use of native species, reduction of unnecessary turf (<https://leg.colorado.gov/bills/hb22-1151> Turf Replacement Program)

Project Sectors Goals, Achievements and Shortfalls

GHG projects in the Uncompahgre Valley are already making an impact on reducing GHG emissions. DMEA's energy profile will improve dramatically once Garnet Mesa's 80 mw solar field, and a new 20 mw solar field with an energy storage component are producing energy. The picture gets even rosier with rooftop solar and the demand of energy produced and utilized at home is recognized, and their energy provider- Guzman continues to increase their renewable energy portfolio.

In addition the City of Delta has three projects aimed at reduction of GHG with the total electrification of the Old Armory Building, constructing a 7 acre solar field at Confluence Park and tying everything together with a microgrid that will provide need energy for its residents at a time when the grid goes down.

These projects are slated to be on-line in the near future. So our energy production Sector goals will easily hit the 2025, and 2030 goals. More than likely energy production will hit 70% renewable energy within 10 years or less.

The Building energy Sector will take considerably more time to reduce its GHG emissions. An important factor is the Building Sector is the need to electrify more buildings and to move away from carbon based heating/cooling. Incorporating weatherization into the building process will certainly save the most amount of energy that is lost due to poor insulation.

The transportation Sector represents the biggest hurdle in reducing GHG emission reduction. People love driving their cars and the interest in electric vehicles has waned over the last year as it is apparent our electric charging infrastructure is not up to the task of assuring people can drive wherever they want whenever they want. There are a number of charging stations in Montrose, but not enough to support the driving public's desire.

Transitioning from gas powered to electric cars will take time, probably alot of time in the Uncompahgre Valley. The intermediate opportunity is the adoption of hybrid electric cars that run on electric batteries and when depleted switch over to a gas generator to replenish the battery.

A component of electric cars that is rarely discussed, but that is a big plus is the data shows electric cars have far much less maintenance or break downs in comparison with gas powered vehicles. Coupled with incentives from the State of Colorado and the Federal government people can save \$12-16,000 on the purchase of an electric vehicle.

With the price of a Chevy Bolt only \$28,000 a family could purchase a new electric car for \$12-16,000.

The Transportation Sector will depend on improving the charging infrastructure to convince more people to drive electric cars. The more electric cars on the road the less GHG emissions from the Transportation sector..

The entity that has and will continue to pioneer efforts to reduce GHG is DMEA. DMEA chose not to sign a long term contract and to leave Tri-State and to partner with another energy supplier - Guzman Energy. As a result they agreed that DMEA can produce up 20% of their own renewable energy (under Tri-State that number was 5%) while Guzman supplies 80% of DMEA's energy. DMEA then have partnered with their energy provider, Guzman, and another partner to conceive, plan, negotiate and will break ground this summer on a 80 mw (the site will produce enough energy for 18,000 homes) solar field named Garnet Mesa. DMEA is also pursuing another solo venture to build a 20 mw solar field that will also have the ability to store energy on site. Guzman's energy profile is thought to be around 40% and increasing. If DMEA can renegotiate their contract with Guzman that will DMEA to produce more of their own renewable energy to 30% with the addition of the new 20 mw site then DMEA's energy portfolio will start to look very promising. The addition of rooftop solar and the energy produced and used at home that is not accounted for in DMEA's system could start to be a very significant contributor of renewable energy to DMEA's profile. Ultimately, DMEA will have up to 70% of their energy as renewable energy once Garnet Mesa, the 20 mw site are producing energy and rooftop solar projects expand beyond the 2000 homes already producing energy.

Projects In the Uncompahgre Valley reducing GHG (This section will be updated as we become aware of new projects and their status. Please let us know of any project you know of that is not listed below)

Energy Sector

City of Montrose Safety Building 156KW parking lot solar	finished 2024
Garnet Mesa 80 MGSolar Field Delta, Colorado	construction 2024
DMEA 20 MG Solar Field and Energy Storage	planning 2024
Cypto Mine Solar Field	Finished 2023
City of Delta solar field	Construction 2024
DMEA 20 MG Solar Field and Battery Storage	Planning 2024
DMEA South Canal hydroelectric project	in place

Transportation Sector

City of Montrose Car charging station City Hall lot	in place
Tesla super charging station North 1st	in place
Charge Point Charging station North 1st	in place
Rivian Charging Station Wolverton Dr	in place
Charging station east main	in place
Blink Charging Station Woodgate Dr,	in place
Montrose Rec Center	in place
Montrose Hospital	in place
Delta Charging station west 3 rd street	in place
Charging station Delta Library	in place
Charging station Delta Hospital	in place

Buildings Sector

City of Delta Armory Building electrification	construction 2024
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Community Sector

City of Delta Microgrid	Planning 2024
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Projects and Potential for Future

This section of our CAP will be continually updated as opportunities present themselves and can be discussed. This document can be shared via Google Docs share by emailing TonyWWhoag@Gmail.com

Energy Production

It is thought that much of the energy produced at Garnet Mesa will also end up being sold to DMEA as economic sense dictates the shortest distance an electron flows the more energy is retained and not lost. This is exciting as there will be times when DMEA's energy may be 100% renewable. It is also likely there are times when carbon based fuels will supply the bulk of energy Guzman sells to DMEA. Again, the electricity industry is in transition.

Fortunately more utility scale sites are being considered which will help, in a few years to tip the balance from carbon based fuels as the dominant energy to renewable energy. One of the biggest hurdles on the western slope of Colorado is that Counties are placing moratoriums on utility scale sites until the counties can figure out how to regulate this new industry. Fortunately, several Counties have created new regulations and rescinded their utility scale moratoriums.

Many people think utility scale renewable energy is the cheapest and provides the biggest return on the dollar. This may be true. But it is extremely important to recognize the value rooftop solar can offer and the role it can play in the transition to the new energy industry. At present the accounting of how much energy is produced by rooftop solar is thought to be 3% of the energy used in Colorado. The 3% does not account for the demand for electricity that is used in the home, but is accounted for in the net energy the homeowner puts back on the grid. Using some assumptions, average household uses 30 kw per day, if 50% of that is met by rooftop solar, there are 2000 rooftop solar homes in the DMEA service territory that calculates out to be 30 MW per day or 10,950 MW per year or coupled with net meter production 4% of DMEA energy sales last year on rooftops that make up 6% of the rooftops in the Uncompahgre Valley. If the number of homes with rooftop solar tripled to 18% that would represent 12% of DMEA electricity need- relative to 2022 energy distributed by DMEA.

That is also not the whole story for rooftop solar. Storage of energy is increasingly becoming more of an issue as we are able to make energy during the day, but what do we do at night? The easiest way for rooftop solar energy to be stored is in the home- don't let those electrons travel very far! If, in our example from above where 18% of the Uncompahgre Valley had rooftop solar AND batteries to store the energy we could be storing much of the produced energy without the loss. More importantly, if the homeowner agreed to allow DMEA to use that energy when it needed to, instead of purchasing energy from Guzman, which may be derived from burning coal and may have to travel a good distance to the Uncompahgre Valley over

overburdened electrical lines, the story starts to become much clearer. And a new way to distribute energy is created.

Virtual Power Plants are an agreement between a utility and a homeowner to store energy on batteries in their home for the utility to use to reduce peak demands. The batteries are also there for the homeowner to use when there is a blackout. In addition, the utility can lease the batteries to the homeowner for a nominal fee and they agree to allow the Utility to use the energy when they need it. The utility would also be responsible to re-energize the batteries.

A clear cut example of how virtual power plants work can be seen in Green Mountain Power in Vermont. They have installed batteries in 4000 homes in Vermont and they think they have saved the utility \$3 million dollars over 3 years which was passed onto the consumer. Green Mountain Powers' goal is to install batteries in every home in their service area which is 2 times the size of DMEAs territory.

Ultimately, the storage of power across the service territory gives the utility maximum flexibility, at a very low cost compared to building a new battery storage site, and it can be developed and functioning in less than 6 months as there is very little governmental regulatory hoops to jump through, few permits to obtain. VPP is also much more flexible than a solar field which when it has a malfunction can shut down, but with distributed energy stored across the service territory there are multiple ways to obtain the energy needed.

Energy Grant Opportunities

Colorado Electric Grid Resilience Funds

<https://energyoffice.colorado.gov/federal-funding-incentives/colorado-electric-grid-resilience-funds>

Colorado Solar For All <https://energyoffice.colorado.gov/cos4a>

Federal solar tax credit 30% tax credit for qualifying solar installations

Greenhouse gas emission reduction fund <https://www.epa.gov/greenhouse-gas-reduction-fund>

Buildings and Energy Use

The building industry in the Uncompahgre Valley has a lot of potential for the future, but as we speak is falling behind as new large buildings are being built throughout the Valley heated/cooled with natural gas, hot water stored in tanks heated by natural gas, stoves that are gas, and without the addition of solar panels in a valley that gets plenty of power producing sunshine every year. On the other hand many building contractors are paying much more attention to the weatherization of new buildings which helps save considerable amount of energy.

Fortunately many opportunities exist for building owners to design buildings that may include heat pumps, hot water heat pumps, electric on demand hot water, efficient glazing, outside insulation (insulation sheets are placed outside of frame walls and exterior siding placed over them thus avoiding the gaps and loss of energy when insulation is placed inside walls (where warm air leaks).

In Addition smart meters can really help buildings become much more efficient as the meter can prioritize energy needs when energy purchase prices are cheapest. Car charging could be done later in the evening instead at peak electrical use where energy is more expensive, heating and cooling systems can also turned on and off to minimize energy use. Smart meters will be especially useful when buildings energy use is electric and demand gets higher each morning and evening.

One of the easiest ways to save energy is often overlooked and underestimated. Orienting a house to maximize solar gain during cooler months is a passive way to save energy. Awnings over windows can help to decrease solar gain during the summer and thus reduce heat in the building.

Many more opportunities are available and known by our partners for building contractors/homeowners to take advantage of in the future. Our goal is to increase awareness in building efficiencies and appliances so they become common place and thus reducing our GHG emissions in the valley.

Building Grant Opportunities

Public Building Electrification Program

Provide public buildings with funding to explore and implement building system electrification measures and infrastructure upgrades

High Efficiency Electric Heating & Appliances (HEEHA) Program

Support community efforts to switch to high efficiency electric heat & appliances.

Geothermal Energy Program

Support the use of zero-emission, geothermal energy for electricity generation and space/water heating and cooling in homes, businesses, and communities

Heat pumps

<https://energyoffice.colorado.gov/hptc>

Full House Weatherization including appliances.

<https://energyoffice.colorado.gov/weatherization-assistance-program>

Weatherization low income solar

<https://energyoffice.colorado.gov/weatherization-assistance/low-income-solar-through-weatherization>

Transportation

The biggest hurdle to get over in reducing GHG in the Uncompahgre Valley will be in transportation. People love their cars, cities are designed around cars. We drive millions of miles in Colorado every year.

The way forward for us to think is to transition people from gas operated cars to hybrid vehicles that can be plugged in, but can also run on gas. Of course the best solution would be fully electric cars driving our roads. But unfortunately our car charging infrastructure is still in its infancy and many people just do not trust that they can drive where they want and back without having to charge their car, and where are those charging stations? How long does it take to charge my car? These are obstacles we need to work through with infrastructure and people's mindsets accepting electric vehicles and buying them.

Hybrid vehicles are a transition that may be more acceptable to people who are reluctant to go fully electric. Hybrid vehicles like mine get 60 miles on a charge and have the additional capacity of driving 350 more miles on gas if need be. I can drive long distances and back without any problem. I estimate though that 90% of my driving is done on my electric charge and I charge at home on a normal wall plug. I can make 3 trips to town and back on one charge and I only have to put gas in my car maybe once a month if I am not traveling.

Another big plus for hybrid vehicles is they use a generator that runs on gas, produces electricity that is stored in the battery or powers the drivetrain as I drive. Thus there are far fewer moving parts and thus much less maintenance or breakdowns have to be done on hybrid or electric vehicles. No timing issues, Less moving parts. Office of Energy Efficiency and Renewable Energy, scheduled maintenance for an EV costs about \$0.06 per mile, while a gas-powered car costs about \$0.10 per mile.

Of course the downside of hybrid vehicles is that they still use carbon based fuels and contribute GHG emissions to our atmosphere. It is vitally important to find ways for us to transition to fully electric vehicles.

A big problem for transition to fully electric vehicles is we do not have the infrastructure that people trust to be there when their battery runs out of a charge. A number of Federal and State grant funding sources do address many parts of the transportation including electric cars and how to charge them.

List of Grant opportunities for **Transportation**

Fast Charging Stations being built across the State

<https://energyoffice.colorado.gov/transportation/grants-incentives/ev-fast-charging-corridors>

Direct Current Fast Charging Stations

<https://energyoffice.colorado.gov/zero-emissions-vehicles/dcfc-plazas>

Electric Vehicle Tax Credits

<https://energyoffice.colorado.gov/transportation/grants-incentives/electric-vehicle-tax-credits>

Fleet Zero Resource Opportunity Grant <https://energyoffice.colorado.gov/fleet-zero>

Community Accelerated Mobility Project <https://energyoffice.colorado.gov/camp>

Community Access to electric bicycles Rebate Program

<https://energyoffice.colorado.gov/ebike-rebates>

E-Cargo Bike Grant Program <https://energyoffice.colorado.gov/ecargobikegrant>

Community Grant Opportunities Opportunities for Grant Money for Projects

Inflation Reduction Act <https://energyoffice.colorado.gov/ira>

Microgrids for Community Resilience Program

Build community resilience regarding electric grid disruptions through funding for the development of microgrids

Colorado Climate Pollution Reduction Grants <https://energyoffice.colorado.gov/cprg>

Colorado Industrial Tax Credit Offering <https://energyoffice.colorado.gov/citco>

Energy Codes Adoption toolkit <https://energyoffice.colorado.gov/energy-code-adoption-toolkit>