

**RESOLUTION NO. 5
SERIES OF 2017**

**A RESOLUTION SUPPORTING A CLEAN ENERGY FUTURE, ADOPTING THE 2017
CLIMATE AND ENERGY ACTION PLAN AND CLEAN ENERGY TARGETS**

WHEREAS, the Board of Trustees of the Town of Carbondale understands that leadership on climate action is required at all levels of government; and

WHEREAS, Carbondale has an important historical connection to coal mining and the economy was very dependent on coal jobs and has since made the transition to a diversified economy; and

WHEREAS, the Carbondale community cares deeply about clean water, clean air, protecting our public lands including protecting the Thompson Divide and the Town of Carbondale has actively engaged in protecting the Thompson Divide and realizes that clean energy is a root solution to protecting lands from gas development; and

WHEREAS, the community of Carbondale spent \$17 million in 2015 on energy bills and vehicle fuel and by reducing carbon emissions the community will save money every year, creating a more resilient economy; and

WHEREAS the Town of Carbondale has become a hub of clean energy businesses and organizations and has been a leader on environmental measures and climate action for over two decades and the Town of Carbondale adopted the Carbondale Climate and Energy Protection plan in 2006; and

WHEREAS the Board of Trustees of the Town of Carbondale finds and determines that it is in the best interests of the Town and its citizens to collaboratively update the 2006 Carbondale Climate and Energy Plan with its citizens and nonprofit organizations; and

WHEREAS since the 2006 Carbondale Climate and Energy Plan the community has installed over 1.2MW of solar, most of that on public buildings, the Town government and schools have reduced energy use in their facilities by 15 to 50 percent, the Town was the first community on the Western Slope to adopt the green commercial code, 10 percent of households have made energy improvements, 32 percent of the 391 commercial businesses have made improvements or built green from the start and the community has increased biking, walking and ridership on RFTA buses, proving that the community and the local governments can work together to achieve targets; and

WHEREAS the Carbondale Environmental Board along with over 30 Carbondale residents volunteered their time and expertise to set the recommended goal, strategies and actions in the updated 2017 Climate and Energy Plan; and

WHEREAS, the utility companies that serve Carbondale citizens have adopted carbon emission reduction targets that complement the work of community making the goals more achievable; and

WHEREAS communities around the country and the world are taking action and have signed onto the Paris Climate Accords, which is a non-binding international agreement that is important to the growth of clean energy economy in Colorado and the United States; and

NOW THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF CARBONDALE, COLORADO,

THAT the Town of Carbondale adopts a goal to create a thriving carbon neutral community and achieve a 100 percent reduction of carbon emission by 2050 by increasing efficiency of all buildings, decarbonizing transportation, increasing the amount of waste that is recycled, reused or composted, increasing local renewables and storage, supporting an abundance of local food, products and services; and

THAT the Town of Carbondale adopts the 2017 Climate and Energy Action Plan as a framework for achieving the goal of a 100 percent reduction in emissions; and

THAT the Town of Carbondale adopts the Garfield Clean Energy Action Plan and the goal to achieve 20 percent increase in energy efficiency over the Garfield County 2015 baseline by 2030 and to obtain between 35 and 50 percent of energy from renewable sources by 2030 as a way to help reach regional goals and as part of the path to reaching the 2050 goals; and

THAT the Town of Carbondale will continue investing resources to implement the actions in the adopted plan and achieve the stated goal; and

THAT the Town of Carbondale urges the Governor of Colorado, state legislators and the state's congressional delegation to be clean energy leaders for our citizens; and

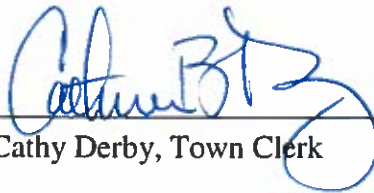
THAT the Mayor of the Town of Carbondale will sign the Mayor's National Climate Agenda showing our local action aligns with international action.

INTRODUCED, READ, AND PASSED this 13th day of June, 2017.

TOWN OF CARBONDALE

By: 
Dan Richardson, Mayor

ATTEST:


Cathy Derby, Town Clerk



2017 Carbondale Energy & Climate Action Plan

DRAFT - as of June-8-2017

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1. Executive Summary

Carbondale has a rich history of clean energy, sustainability and renewable energy pioneers. Living out that history and tradition, the community has been hard at work to reduce energy use, adding renewables and implementing green transportation options. By constantly being a leader on all fronts, Carbondale has helped prove to other communities the benefits of taking action.

Building on that history, the *2017 Energy and Climate Action Plan* outlines strategies across five key sectors, all of which work towards the goal of carbon neutrality. As detailed, reductions in carbon emissions will take the shape of changing daily behaviors, such as walking or driving; of bigger decisions, such as energy efficiency retrofit in a business; and larger policy changes, such as implementing strong building codes to transform that community away from fossil fuels.

Buildings Energy

- Lead by example: improve energy efficiency of Town buildings
- Boost energy efficiency in existing commercial and residential buildings
- Encourage sustainable energy choices through education, market demand, social norming, and community campaigns
- Build it right from the start: all new buildings should be super efficient
- Increase the number of quality builders and contractors to ensure buildings are energy efficient, durable, and safe

Energy Supply & Renewable Energy

- Lead by example: expand the amount of renewable energy delivered to Town buildings
- Accelerate the installation of renewable energy systems on homes and businesses
- Evaluate neighborhood or district renewable energy systems
- Advocate for comprehensive policies at the regional and state-level

Transportation

- Lead by example:
- Continue to build on in-town and regional efforts to encourage biking, walking, telecommuting, use of transit and carpooling
- Continue to accelerate adoption of cleaner vehicles/fleet replacement with lower-carbon options
- Continue progress on land-use/mobility linkages and community design strategies that support biking and walking and reduce need for driving.

Waste Reduction & Reuse

- Lead by example: practice reducing, reusing, recycling and composting in departments
- Decrease the amount of recyclable and compostable materials entering the landfill
- Reduce waste by expanding reuse and repair initiatives

- Make it simple for everyone to participate in waste programs and waste goals

Local Food & Purchasing

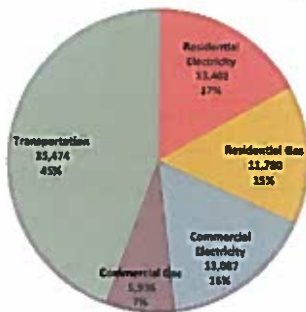
- Lead by example: purchase local foods, and local products
- Increase production, availability and consumption of locally grown food
- Increase production, availability and consumption of local products and services

The success of this Plan requires collaboration from all levels: residents, businesses, community organizations, as well as the involvement of regional, state and national actors. In particular, the Town of Carbondale serves an invaluable role in modeling replicable solutions and helping its residents take action. As such, each of the five sectors emphasize how the Town can lead by example and support the work of others through education and outreach.

Energy Picture & Progress to Date

The majority of greenhouse gas emissions generated locally are from buildings and vehicles.

Emissions by source and end use - Metric Tons of CO2e - 2015



Emissions across Carbondale have decreased 36 percent between 2004 and 2015. Factors that contributed to this decline may include:

- A shift to a greener electric grid,
- Improved energy efficiency in buildings,
- More local renewable energy systems,

Among other actions in transportation, waste, and general sustainability. What is clear is that a portion of these savings can be attributed directly to the actions taken by the Town government, the local schools, businesses and families.

Major Accomplishments

The community of Carbondale has a long history of being involved in the clean energy industry. The timeline below includes highlights of major energy and climate-related accomplishments since the *2006 Energy & Climate Protection Plan*. Since the adoption of the Plan, the Town of Carbondale has made major strides towards adopting and implementing the identified actions (almost 75 recommendations).

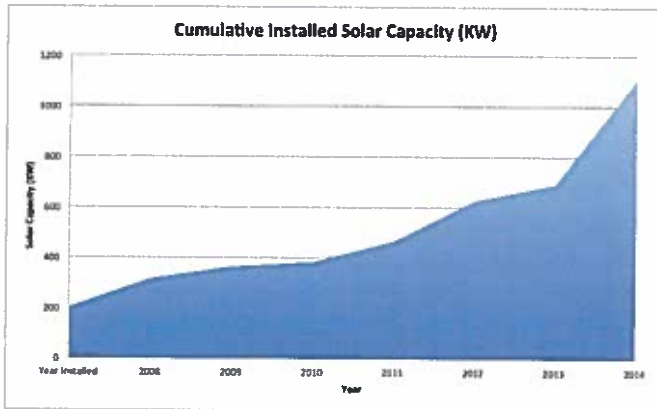
- 2006: Town adopts the *Energy & Climate Protection Plan*
- 2008: Solar PV system installed at the recreation center through power purchase agreement
- 2008: Town joins Garfield New Energy Communities Initiative with 10 other governments in Garfield County, the precursor to Garfield Clean Energy and received the GNECI grant from Governor Ritter's office in the amount of \$1.6 million for the entire county.
- 2009: Solar installed at Third Street Center using power purchase agreement
- 2011: Town considered an energy performance contract which resulted in energy assessments and then the town funded the major capital improvements at facilities
- 2011: Community passed a ban on plastic shopping bags at large retailers
- 2011: Garfield Clean Energy's Better Buildings Grant provided funding for a energy efficiency financing (loan program and rebates)
- 2011: Town adopts the Residential Efficient Building Code
- 2012: Town creates Carbondale 2020 focused programs with CLEER and CORE
- 2012: Town signed IGA to become partner of Garfield Clean Energy a 10 member government collaborative that provides energy efficiency and clean energy and petroleum reduction services to homes, businesses, and governments throughout Garfield County
- 2013: Roaring Fork Transit Authority purchased 18 CNG buses and implemented Bus Rapid Transit service
- 2013: Solar installed on Public Works, Roaring Fork Water, Third St. Center using a Power Purchase Agreement
- 2013: First public electric vehicle charging station for the Roaring Fork Valley installed at Town Hall
- 2014: Energy Smart Colorado rebates and assessments extended to Carbondale
- 2015: Town dedicated funds to help launch new low-income energy program in Carbondale and across the county
- 2015: The Town passes a resolution dedicating 20% of severance tax and federal mineral lease funding to support clean energy ef
- 2016: A 385-kilowatt solar array installed at Roaring Fork High School to cover 100% of electric usage
- 2016: Garfield County adopts Property Assessed Clean Energy (PACE) program
- 2017: Carbondale's RFTA Circulator upgraded to compressed natural gas engine

[Spotlight] Wastewater Treatment Plan

From 2009 to 2016, the wastewater treatment plant (WWTP) has reduced energy costs by 50%, saving the town \$80,000 a year on utility bills. This has been achieved by implementing behavioral changes, closely monitoring the operations, and adjusting controls, proving that savings can be achieved without costly capital improvements.

[Spotlight] Solar on Public Buildings

As of June 2016, there is over 1MW of solar on public buildings in the town limits of Carbondale.



[Spotlight] Electric Vehicles

The expansion of EV infrastructure and charging stations. Since 2010 public charging stations have been installed around town, including at Town Hall, Colorado Mountain College, Third Street Center, Roaring Fork High School and the RFTA Bus Rapid Transit (BRT) Station. In addition to charging stations in Carbondale, CLEER staff have worked with partners across the region to grow infrastructure.

2. Acknowledgements

This Plan would not be possible without the participation of the following elected officials, community members, and organizations.

Town Council

Dan Richardson, Mayor
Ben Bohmfalk
Katrina Byars
Heather Henry
Frosty Merriott
Marty Silverstein

Environmental Board (E-Board)

Brad Davis
Julia Farwell
Natalie Fuller
Matt Gwost
Patrick Hunter
Scott Mills
Amanda Poindexter
Jason White

Matt Hamilton

Chris Hildred
Brandon Jones
Amy Kimberly
Soozie Lindbloom
Joani Matranga
Mark McLain
Chris Menges
Julia Morton
Steve Novy
Ken Olson
Ali O'Neal
Alyssa Reindel
Katharine Rushton
Carey Shanks
Emily Steers
RJ Todd
Karen Wahmund
Colin Quin
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Town Staff

Jay Harrington, Town Manager
Mark O'Meara, Utilities Director

CLEER Staff

Alice Laird, Director
Erica Sparhawk, Director of Programs and Services

Citizens Advisory Group

Michael Kinsley (facilitator)
Clare Bastable* (facilitator)
Ellie Barber
Kevin Brehm
Roy Davidson
Jeff Davlyn
Jeff Dickinson
William Draper
Adrian Fielder
Gwen Garcelon
Laurie Guevara-Stone

CORE Staff

Mona Newton, Executive Director
Sarah Gruen, Energy Programs Specialist

Former elected officials and members of the Technical/Finance Advisory Committee (if mentioned above have*) that made sure this plan happened include: Stacey Bernot, Allyn Harvey, Michael Hassig, Casey Sheahan and Tom Baker.

Primary Authors: CLEER and CORE Staff

Editor: {Enter Name}

Design: {Enter Name}

Funding for this plan was provided by the Town of Carbondale, CLEER and CORE.

3. Letter from Council

(Erica to make request. Consider how this letter can relate to/reference the Environmental Charter)

4. Introduction

Over the last two decades, the Town of Carbondale has been a leader on climate action and sustainability. It was known then, and has since become more apparent, the Carbondale can and must dramatically reduce its greenhouse gas emissions. Perhaps more importantly, the community has a lot to gain by doing so.

Addressing the community's carbon footprint can secure energy independence, spur greater economic development, create good jobs, increase tourism, support clean air and water, and make a more thriving, sustainable community.

The 2006 *Carbondale Energy and Climate Protection Plan*, the first climate plan for Carbondale was written in 2006. Now, ten years later, the Town of Carbondale has asked Clean Energy Economy for the Region (CLEER) and the Community Office for Resource Efficiency (CORE) to update that Plan.

Over the course of four months, community workshops brought together community members and experts to develop new targets for the community to work towards, and to identify new strategies to address the community's carbon emissions. To this target, five key strategy areas were identified:

- Buildings Energy
- Energy Supply and Renewable Energy
- Transportation
- Waste Reduction and Reuse
- Local Food & Purchasing

This plan, the *2017 Carbondale Energy and Climate Protection Plan*, is a roadmap to carbon neutrality and for creating a sustainable future that will serve the entire community. Each strategy area details specific action items, with areas and actions contributing to form one

integrated plan. These actions are to be implemented by the Town, with support from the Environmental Board, partner organizations, and the entire community.

Background: we are not starting from scratch

This Plan does not represent the beginning or the end of Carbondale's sustainability efforts. It is one step on a long path. Significant work has already been done to reduce Carbondale's emissions: the Town of Carbondale, and those who choose to call Carbondale home, have worked to prioritize climate-friendly policies by adopting emission reduction goals, building bike lanes, purchasing solar power, upgrading the efficiency of municipal buildings, and passing progressive energy codes. Carbondale has been recognized for its broad range of actions on climate change and sustainability.

Moving Forward

The *2017 Carbondale Energy and Climate Protection Plan* raises the bar; it challenges Carbondale to go further, faster. The Plan seeks carbon neutrality for the entire community by 2050. It imagines a community with a thriving economy in which:

- All buildings have net-zero emissions
- All energy is powered by renewable sources
- The majority of trips are made by walking, biking, and public transit; and all vehicles use low-carbon fuels
- All waste is recycled or reused
- An abundance of local food, products, and services

Meeting this goal requires a bold vision of moving beyond changing light bulbs, to transforming the entire community. First, the total amount of energy consumed (fuel for cars, electricity in homes, etc.)

must be decreased, then the energy needs to be replenished with renewable sources. This transition will lead to a balanced carbon footprint for buildings, for transportation, and for the entire community.

Let's be clear – Carbondale, along with many other communities with similar goals, has not yet defined the exact path to take to reach carbon neutrality. The *2017 Climate Action Plan* is a roadmap, embracing strategies that can lead to enormous decreases in carbon emissions in the next 10 years. There are a number of potential pathways, with the correct path for Carbondale's 2050 goal still evolving. As best practices are refined, and modeling of carbon impacts improves, this path will become clearer.

What is certain is that collective action is needed: every individual, business, and neighborhood needs to be engaged. In particular, neighborhoods will be the building blocks of community-wide action. An emphasis on the neighborhood facilitates innovation, investment, and replicability. The successful introduction of policies and programs at the neighborhood level, can help enable community-wide adoption.

Encouragingly, Carbondale has proven its ability to cut emissions. With this new plan to guide action, Carbondale has taken one step closer to carbon neutrality.

5. Climate Action & Background

The Time to Act is Now

"We are the first generation to feel the effect of climate change and the last generation who can do something about it."

- Governor Jay Inslee, Washington State

There is widespread consensus that the Earth's climate is changing due to the increasing concentration of greenhouse gases in the atmosphere. Furthermore, scientists agree that everyday human activities are the dominant cause of this accumulation. This includes the burning of fossil fuels (coal, natural gas, gasoline) to heat homes and power vehicles, among other actions. The warming of the climate will pose a significant threat to our natural and human systems on all continents and across the oceans.

Studies have shown that:

- The Earth is warming quickly: 2016 was the hottest year recorded, beating the record-warm years of 2015 and 2014.¹
- Even more, this warming is not isolated, but part of a long-term trend: 16 of the 17 hottest years on record for the world have occurred this century.²

Communities have committed to tackling this challenge head-on. At the United Nations Framework Convention on Climate Change (UNFCCC) conference in Paris in November, 2015, the world's governments agreed to limit the rise of global temperatures to 2 degrees Celsius. The commitment underscores the importance of "holding the increase in global temperature to well below 2 degrees C above pre-industrial levels..." with an emphasis on limiting warming to

1.5 degrees.³ This action is grounded in the Intergovernmental Panel on Climate Change (IPCC) 2014 report. This report underscores the following facts on climate change:

- **Acting on climate change is more urgent than ever.** The impacts of climate change are expected to become more severe as the climate continues to warm. Unless we rapidly reverse the trajectory of greenhouse gas emissions, we risk triggering irreversible climate impacts.
- **The sooner we act, the more cost-effective it will be.** According to the head of the IPCC, "2C is achievable, and if we fail to act according to what the IPCC has been advising, the cost will rise phenomenally. The sooner we act, we will be able to achieve 2C stabilisation cost-effectively. The longer we wait to take action, the cost will be a lot higher and to pursue efforts to limit the temperature increase to 1.5 degrees C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change."⁴

Analysis shows that to limit warming to 2 degrees, developed countries will have to reduce greenhouse gas emissions by at least 80 percent by 2050.

¹ [Adoption of the Paris Agreement: see text.](http://www.npr.org/sections/thetwo-way/2015/12/12/459502597/2-degrees-100-billion-the-world-climate-agreement-by-the-numbers)
² <http://www.npr.org/sections/thetwo-way/2015/12/12/459502597/2-degrees-100-billion-the-world-climate-agreement-by-the-numbers>
³ <http://www.npr.org/sections/thetwo-way/2015/12/12/459502597/2-degrees-100-billion-the-world-climate-agreement-by-the-numbers>
⁴ <http://www.npr.org/sections/thetwo-way/2015/12/12/459502597/2-degrees-100-billion-the-world-climate-agreement-by-the-numbers>

¹ [Earth Sets a Temperature Record for the Third Straight Year](http://www.nytimes.com/2016/01/05/science/earth-sets-a-temperature-record-for-the-third-straight-year.html), NYT

² [2016 hottest year ever recorded – and scientists say human activity to blame](http://www.guardian.com/environment/2016/jan/05/2016-hottest-year-ever-recorded-and-scientists-say-human-activity-to-blame), Guardian

[Sidebar] The Carbondale Community Weighs In

Largely, the Carbondale community has a great acceptance that climate change is caused by human activities, and a favorable view of the government working to enable the community change. Results from 2016 Energy and Environment Survey include:

- 93% agree that the earth is getting warmer. The climate is changing.
- 87% agree that human caused emissions are causing climate change.
- 83% agree that technology will not solve climate changes without any changes in individual behavior.

- 81% agree that government should be involved in addressing climate change.
- 84% agree that governments should offer voluntary programs that enable citizens and businesses to reduce climate change.
- 77% agree that governments should enact legislation and regulations to reduce climate change.
- 89% agree with the statement: "I feel a personal obligation to reduce greenhouse gas emissions."

** This survey ran from June 2016 to December 2016 and received responses from 408 residents of Carbondale, who voluntarily participated in the survey.*

Preparing for Climate Change

"If present trends continue, this century may well witness extraordinary climate change and an unprecedented destruction of ecosystems, with serious consequences for all of us."

- Pope Francis, *Laudato Si*

Despite Carbondale's successes in reducing GHG emissions locally, the climate is already changing. Projections for the future suggest that local shifts in climate could bring warmer winters and drier summers. These changes could lead to cascading impacts, including exacerbating wildfire conditions, putting extra pressure on water providers and users, impacting the recreation economy, and threatening other sectors of the Carbondale community.⁵

Projections have led communities around the world to engage in resiliency planning to ensure that they are equipped to address climate-related vulnerabilities, Carbondale among them. Resiliency planning (also referred to as "adaptation planning") is a twofold process:

1. First, it is an analysis of projected climate change impacts
2. Using this information, it then entails the development of strategies that can work to limit the scale of the impacts and the costs of climate-related vulnerabilities.

Existing efforts include:

- Water studies performed by the [Colorado Water Conservation Board](#): the availability and flow of water has been studied under different climate scenarios
- Participation in the [Colorado Local Resilience Project](#): Carbondale, along with representatives from 30 local governments around Colorado identified actions that could be

⁵Arnett, James. *Climate Change & Aspen: An Update on Impacts to Guide Resiliency Planning and Stakeholder Engagement*. (2014)

implemented to make communities more resilient to climate change-related risks.

- General mitigation planning: in 2017, Garfield County is updating the countywide [2012 Natural Hazard Mitigation Plan](#)

Local community members are concerned about how these climate-related impacts will affect the environment, their businesses, and their personal well being.

[Sidebar] Community Spotlight: Roaring Fork Food Alliance
Climate change is expected to have a significant impact on the global food system. Creating a thriving local food system is key to climate preparedness. The Roaring Fork Food Alliance knows this, and is working to encourage coordinated action throughout the Roaring Fork Valley and Colorado River Valley in support of this. The Alliance of producers, consumers, educators, and policymakers see growing food and purchasing food from farmers as important strategies to prepare for the effects of climate change.

Multiple Benefits of Climate Action

Again and again there is evidence that taking action on climate change results in a multitude of added benefits.

In particular, clean energy is a major source of jobs and Carbondale is well prepared to take advantage of the clean energy economy. In 2016, the number of solar jobs in the United States were greater than the number of fossil fuel industry jobs.⁶ Carbondale already has at least 38 companies that perform energy efficiency or clean energy projects across the region between 2010 and 2015. These companies range from general contractors who have learned building science principles and efficiency practices, to solar design and installation companies, and even innovative efficiency technology developers.

In addition to supporting the clean energy economy, the transition to carbon neutrality will provide additional community benefits and economic opportunities. Including;

- Lower utility bills: The community spends over \$7 million every year paying for electricity and natural gas. When families save on their utility bills, they are more likely to spend that money locally. When businesses save on their utility bills, they likely invest those savings into more product, more staff or improved equipment to help their business increase productivity.
- Safer, more comfortable, and more affordable buildings: initiating energy efficiency upgrades in buildings can have a big impact. Increased access to public transit and alternative transportation: this can reduce air pollution emission and reduce road congestion.
- Improved transportation infrastructure: to improve biker and pedestrian safety. It also works to improve public health by getting more people moving.

It's clear, just as climate change affects everyone, climate action can benefit everyone.

[Sidebar] Why do You Act on Climate?

- Our future, our kid's future
- Clean air and clean water
- The health impacts of climate change
- It's cheaper to mitigate now
- The economic vitality of our valley which relies heavily on healthy natural resources and snow
- The public benefits of acting on climate
- The economic benefits of clean energy
- Once you're aware, you're responsible
- To prepare for community resilience - how we will bounce back
- Frustration with climate denial, and would rather put my energy into proactive, positive change
- It is exciting to witness the transformation

(Some Stakeholder responses from meeting 1)

⁶https://www.energy.gov/sites/prod/files/2017/01/f34/2017%20US%20Energy%20and%20Jobs%20Report_0.pdf

6. Carbondale's Energy Picture

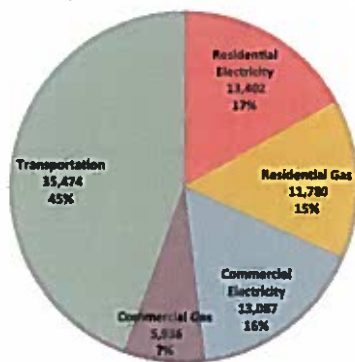
Community Wide Energy Use and Emissions

In order to reduce greenhouse gas emissions, it is critical to track the sources and quantity of emissions. With that in mind, Carbondale has been measuring its carbon footprint since 2004.

In 2015, the Carbondale community was responsible for emitting 79,679 metric tons of carbon dioxide equivalent (MTCO₂e) from energy use and transportation.

Community-Wide Carbon Footprint

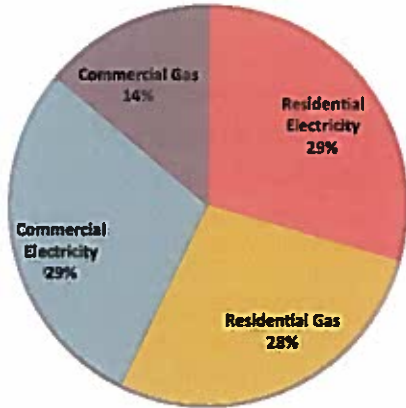
Emissions by source and end use - Metric Tons of CO₂e - 2015



The energy used to heat and power buildings was the largest source of emissions, generating 55% of overall emissions. Of emissions from buildings energy, homes are responsible for a greater portion than businesses, at 32% of overall emissions. Transportation sector emissions total 45% of overall emissions.

Homes generate a greater share of emissions than businesses

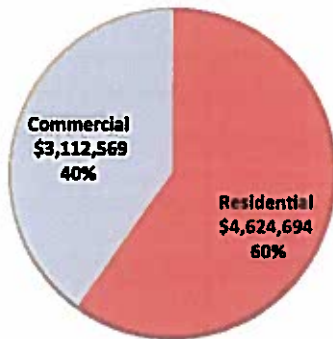
Building emissions by sector and fuel type



Household energy use generates a greater share of emissions, as compared to business energy use, at approximately 57% of emissions from the built environment. In order for Carbondale to reach emission reduction goals, it is imperative that households become more energy efficient.

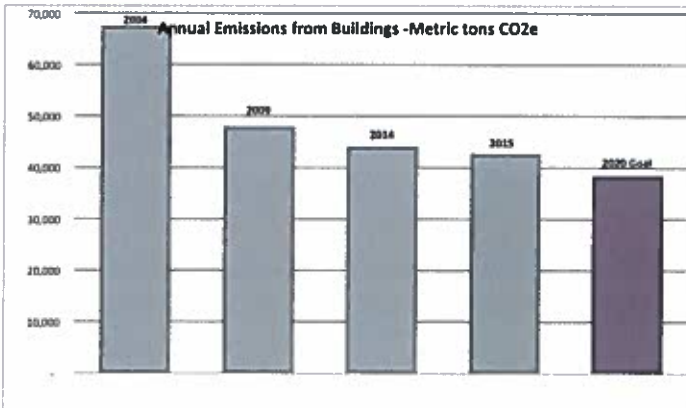
The community of Carbondale spends over \$7 million annually on building energy use

Building utility bill costs - 2015



The Carbondale community spends over \$7 million every year on electric and natural gas bills. When the community saves on utility bills, that creates significant funds that can be spent on other local purchases. In particular, Carbondale residents spend over \$4.5 million on the bills to heat and light their homes and apartments.

Between 2004 and 2006, emissions from building energy use have declined approximately 36%.



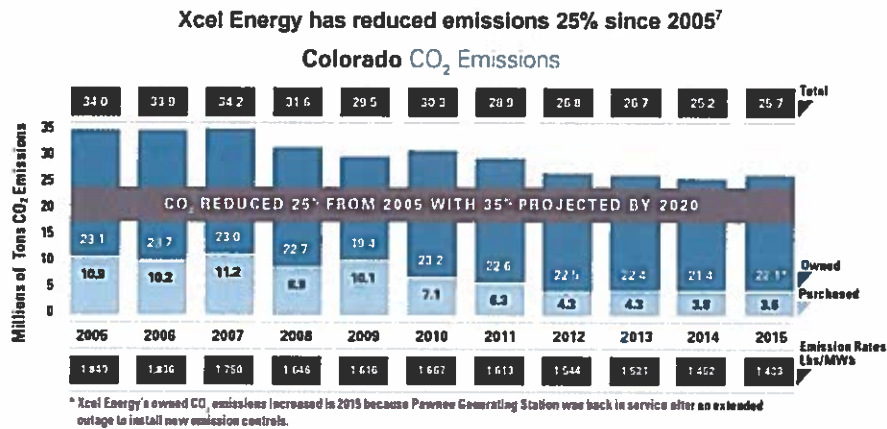
This reduction was made possible through local programs, services, and investment geared at reducing energy use as well as a cleaner electric grid..

Electricity has gotten cleaner

Since the 2004 inventory of emissions, statewide policy has helped spur cleaner, less-carbon intensive sources of electricity and utilities have since embraced adding more renewables to their fuel mix.

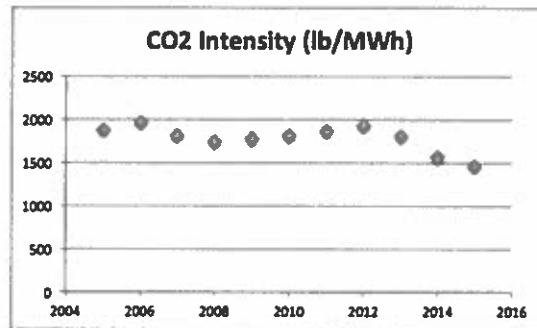
In November 2004, Colorado voters passed the Renewable Energy Portfolio standard (RPS), requiring that Investor Owned Utilities (such as Xcel Energy) supply a minimum of 10% of their retail electric sales from renewable sources by 2020. This was the first RPS passed by a ballot initiative in the United States. Since then, the Colorado Legislature has added to the RPS three times, including adding electric cooperatives (such as Holy Cross Energy) and increasing the requirements for electric cooperatives to 20% and investor-owned to 30%.

Below are two charts showing how Xcel Energy and Holy Cross Energy have added more renewables and reduced their carbon emissions since 2005.



⁷ Xcel Energy Corporate Responsibility Report - https://www.xcelenergy.com/company/corporate_responsibility_report/library_of_report_briefs/climate_change_and_greenhouse_gas_emissions

Holy Cross Energy has reduced emissions 22% since 2005

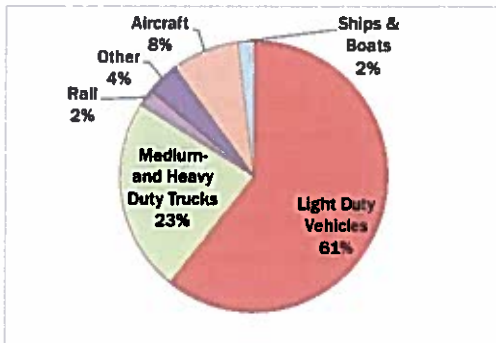


Transportation

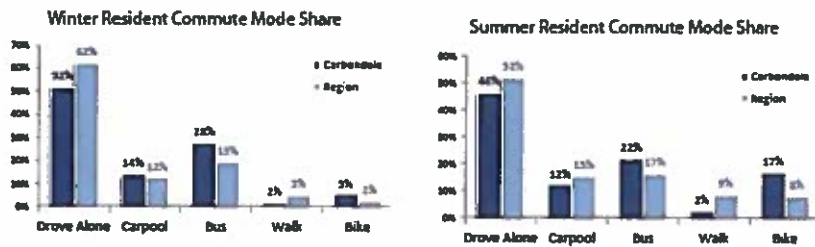
As seen in figure XX, 45% of the overall emissions in Carbondale come from transportation. This figure was calculated from the Colorado Department of Transportation data for Garfield County was used to determine the contribution transportation (cars and trucks) makes to overall emissions.

While transportation is difficult to gather for small localities, there is better data available on the national level. Here is a chart showing the U.S. Transportation Sector Emissions by Source (metric tons of CO₂e) for 2013⁸. Light Duty vehicles are the passenger vehicles that people use every day for work and recreation. As communities work on efficiency strategies, it's getting people out of their cars which needs to be a priority.

⁸ Fast Facts U.S. Transportation Sector Greenhouse Gas Emissions 1990-2013, Office of Transportation and Air Quality (EPA-420-F-15-032) October 2015



Carbondale residents' use of public transit, biking and walking is higher than the national average. According to the 2014 RTPS, an analysis of commute mode reveals that while the majority of Carbondale residents drove alone (52%), a significant portion relied on alternative transportation: 14% carpoled, 28% rode the bus, 2% walked and 5% biked. As one might expect, the summer commute mode share reflects a greater reliance on walking and biking (at 3% and 17%, respectively).



Source: Carbondale Profile, RTPS

7. Carbon Neutral Community

Carbondale is not alone in its effort to reach carbon neutrality: communities around the world have made similar commitments and the organizations such as the Carbon Neutral Cities Alliance (CNCA) promote best practices to achieving aggressive carbon reduction goals.

Commitments include:

Austin, Texas: carbon neutral by 2050

Copenhagen, Denmark: 100% carbon neutral by 2025

Colorado Mountain College: carbon neutral by 2050

Costa Rica: carbon neutral by 2021

Menlo Park, California: climate neutral by 2025

Montpelier, Vermont: first zero net energy state capital

Oslo, Norway: 100% fossil fuel free carbon by 2030

Park City, Utah: net zero municipal operations by 2022; net zero community wide by 2032

Reykjavik, Iceland: carbon neutral by 2040

Seattle, Washington: carbon neutral by 2050

The scope of these commitments vary, as do the approaches and the utility context -- ranging from community-wide goals, to focusing on municipal utility energy supply.

For most communities, a carbon neutral commitment provides a vision and framework for long-term action. According to CNCA, "No city has detailed strategies and plans for getting all the way to the 80x50 target yet, and there are large gaps in what cities know about exactly what will need to be done to reach the ambitious 2050 targets. There is wide recognition among the cities that doing so will require a

fundamental, transformational redesign of core systems and the development of new technologies." As these plans materialize, Carbondale will benefit from the examples and studies performed by these other leading cities.

[Sidebar] Ashton Hayes, England

The community of Ashton Hayes has come together to become the first carbon neutral village in England. "We just think everyone should try to clean up their patch," said Rosemary Dossett, a resident of the village. "And rather than going out and shouting about it, we just do it." "The community recognizes that unavoidable emissions will be generated by daily activities and business operations, and that is OK. Ashton Hayes is still some way off from its goal of becoming completely carbon neutral - but that doesn't really matter, locals say. What sets this project apart is the way that people have taken the matter of climate change into their own hands, and actually done something about it"¹⁰ Emissions may not be entirely eliminated, but this commitment demonstrates a community-led initiative that works toward carbon neutrality.

¹⁰ https://www.nytimes.com/2016/08/22/science/english-village-becomes-climate-leader-by-quietly-cleaning-up-its-own-patch.html?_r=0

¹⁰ <http://www.dw.com/en/english-village-strives-for-carbon-neutrality/a-19550628>

Goals and Strategies

"Reducing greenhouse gases requires honesty, courage and responsibility." – Pope Francis, Laudato Si

The fact is that becoming a truly carbon neutral community requires significant transformation and hard work. Meeting this ambitious target will require new policy, in combination with widespread public participation.

A carbon neutral community achieves the following:

- All buildings have net-zero emissions
- All energy is provided by renewable sources
- The majority of trips are made by walking, biking, and public transit; and all vehicles use low-carbon fuels
- All waste is recycled or reused or composted
- An abundance of local foods, products, and services are available

This vision of carbon neutrality served as a guide for each of the five strategy areas. Together, the actions outlined in each of five strategy areas (Buildings Energy, Energy Supply & Renewable Energy, Transportation, Waste Reduction & Reuse, and Local Food & Purchasing) support this common goal.

To better indicate progress we have developed clear, quantifiable targets and baseline numbers for 2030, and for 2050 for three of the five strategy areas: Buildings Energy, Energy Supply & Renewable Energy, and Transportation. As better indicators become available, we will develop targets for the Waste Reduction & Reuse, as well as the Local Food & Purchasing strategy areas.

[Sidebar] Carbon Neutral City = the net greenhouse gas emissions associated with a city is zero. {Source: Carbon Neutral Cities Alliance}

Buildings Energy strategy area

All buildings have net-zero emissions

Indicator	Baseline	2030 Target	2050 Target
Decrease community wide emissions from energy	47,957 metric tons CO ₂ e (2009)	50% decrease	100% decrease
Decrease emissions from town	2,081,876 lbs of CO ₂ (2016)	75% decrease	100% decrease

facilities			
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Energy Supply & Renewable Energy strategy area

All energy is powered by renewable sources

Indicator	Baseline	2030 Target	2050 Target
Increase local renewable energy generation	1.2 annual kW local capacity (2016)	25% increase in locally supplied clean energy	25% increase in locally supplied clean energy
Increase renewables on grid provided by utilities		50% renewable sources	100% renewable sources
Increase the supply of renewable energy to Town-owned buildings	35% powered by renewable energy (2016)	75% renewable energy	100% renewable energy

Transportation strategy area

Aspirational Vision: the majority of trips are made by walking, biking, and public transit; and all vehicles use low-carbon fuels

Indicator	Baseline	2030 Target	2050 Target
Increase the percent mode share by walking, biking, and/or public transit	52% of residents commute alone in a personal vehicle (RFTA transportation study, 2014)	50% increase	100% increase
Reduce petroleum use in town operations	X gallons (enter baseline year)	20% decrease	100% decrease

8. The Path to Carbon Neutrality

No single action can be deployed to reach carbon neutrality, the actions listed here work together to form a comprehensive plan. Together, the *2017 Energy and Climate Action Plan* identifies over 70 actions for the community.

The action steps are listed in the appendices and are organized by strategy area.

All actions included in this plan were selected using a thorough evaluation process. Recommendations were well-researched and collaboratively developed, relying on input from key stakeholders, including the Environmental Advisory Board, the Citizens Advisory Group, and experts. A number of the listed actions build-on or accelerate existing programs, while a number identify new opportunities to reach carbon neutrality. The majority of the listed actions are voluntary efforts as incentivizing change has been a proven lever to accomplish goals. In instances when voluntary initiatives do not produce the desired results mandates may be recommended.

It should be noted that these actions are part of a "living document." These set an agenda for the next 5 to ten years, and will continue to evolve with input from stakeholders, development of new technology, and available resources.

Funding

The proposed actions will require funding, both through leveraging existing financial resources and through identifying and securing new financial resources.

Unlocking new funding streams will be key to funding, building, and sustaining projects. This will require a mixture of approaches to

internal and external funding sources, including grants. A list of potential funding streams is in Appendix H.

The Town of Carbondale has recognized that funding climate action is a good investment.

- The savings earned from decreased energy bills and decreased fuel costs tend to be reinvested back into the city.
- The costs due to not acting on climate would be much greater.
- The projects, including bike lanes, more comfortable buildings, are good for our town and community.

The Town has been investing in energy management and efficiency programs since the adoption of the original plan in 2006.

Potential Partners

The Town of Carbondale will lead the implementation of the action items. But the Town can not complete all action items alone, partnerships will continue to be key to achieving success. In addition to collaboration with residents and businesses, local entities will be relied upon for support. The climate action team has identified potential partners that may be able to offer support. In areas in which the Town does has less control, the Town will advocate for regional or state policies and work to influence change.

Example Programs

Example programs and case studies from other communities helped to guide the development of these action steps. Links to other programs are included to further drive efforts and inspire change.

Tracking & Measurement

Regular tracking, evaluation, and monitoring is important to ensure successful implementation of the emissions reduction strategies.

Measuring emissions levels is essential. Measurement provides the data to assess progress in reducing emissions and provides information on overall trends in emissions. At a minimum, the Town will perform a comprehensive update the community emission inventory every four years. Due to data collection challenges, a comprehensive update to the community emissions inventory will be performed every four years. A progress report on the emissions from energy use will be performed annually. The progress reports will report on emissions trends, as well as the factors that may have influenced emissions.

This tracking, evaluation and monitoring will allow for adjustments prior to the next Energy and Climate Action Plan, as well as to help structure E-board work plans, and clean energy work.

These results will be shared with the public. To further encourage public participation, creative strategies will be pursued to engage the public. This could include a display or “thermometer” to show progress.

[Sidebar] The Art of System Change

System transformation requires multiple strategies, alignment of stakeholders around an ambitious carbon emissions goal, a vision for what the redesigned system will look like, policy decisions at multiple levels of government, enormous capital investments by government and the private sector, and behavior changes by enterprises and individuals. Culture change, in particular, can be a slow-moving transition on the way to a “tipping point” in which people’s expectations and habits have become radically different.

Source: Carbon Neutral Cities Alliance, “Framework for Long-Term Deep Carbon Reduction Planning”

Buildings Energy

The energy used in buildings is the biggest slice of Carbondale's emissions pie, accounting for 55% of overall emissions. Here's the good news: energy efficiency projects and everyday behavior changes (such as turning off lights when you leave a room) have already helped Carbondale cut emissions.

These energy projects and behavior changes in homes and businesses are key to meeting Carbondale's greenhouse gas emissions goals. In fact, increasing the energy efficiency of buildings is often the simplest and most cost-effective solution to reducing greenhouse gas emissions. Existing programs such as energy assessments, energy efficiency coaching, and energy advising must be expanded. In addition, new programs and new outreach tactics must be created to increase participation. An energy efficient retrofit can help reduce energy use.

While existing buildings need to be upgraded to meet current energy efficiency standards, new homes and buildings need to embrace green building. Integrating new construction techniques and sustainable building materials can help to reduce the amount of energy a building will use.

[Sidebar] Energy efficiency: using less energy for the same service

Progress to Date:

- Availability of technical support and local financing for energy efficiency work, including cash-back rebates, a low-interest revolving loan fund, and a low-income energy program.
- Between 2010 and early 2017, over 70 small businesses took advantage of these efficiency programs, resulting in in \$76,272 annual utility bill savings.
- Energy consumption and energy expenses are tracked at major town facilities

- From 2009 to 2016, the wastewater treatment plant (WWTP) has reduced energy costs by 50%, saving the town \$80,000 a year on utility bills. This was achieved through behavior changes, close monitoring of operations, and adjusting controls, proving that savings can be achieved without costly capital improvements.
- Construction codes include the Residential Efficient Building Program and the 2013 International Green Construction Code

Strategies and Action Items:

- **Lead by example: Improve energy efficiency of Town buildings**

Continue to manage municipal energy use, while increasing the energy efficiency of municipal operations.

- **Boost energy efficiency in existing commercial and residential buildings**

Continuously improve, expand and accelerate participation in energy efficiency programs, introduce new programs, better address renters and underserved populations.

- **Encourage sustainable energy choices through education, market demand, social norming, and community campaigns**

Expand and develop new messaging and communication campaigns and ensure that content is available in both Spanish and English.

- **Build it right from the start: all new buildings should be super efficient**

Ensure new construction achieves or exceeds energy standards, and recognize achievement in new construction.

- Increase the number of quality builders and contractors to ensure buildings are energy efficient, durable, and safe

Promote qualified workforce and good green jobs, and provide necessary resources on green building and building energy science.

[Sidebar] Energy Improvements

Between 2009 and early 2017, homes and businesses engaged in energy efficiency programs administered by CLEER and CORE.

Business Energy Improvements

- 70 business completed energy efficiency upgrades since 2009
- \$76,272 in annual cost savings
- \$410,875 invested in project costs
- Reduction of 590.74 CO2 metric tons/year
- Some of the energy efficiency upgrades include: LED lighting, high efficient heating and cooling equipment, high efficiency motors, and insulation.

Home Energy Improvements

- 270 homes completed energy efficiency upgrades since 2009
- \$72,209 in annual cost savings
- \$970,800 invested in project costs
- Some of the energy efficiency upgrades include: weatherization, Energy Star appliances, LED lighting, and energy efficient windows.

[Sidebar] Green Building Design

The Marble Distillery Company building was the first major commercial building to meet the requirements of the International Green Construction Code in the town of Carbondale. This multi-use building (with a distillery, tasting room, and luxury guest rooms) goes above and beyond local code: it is 85% more efficient than requirements. This is partly thanks to innovative design which includes an integrated systems approach utilizing the heat from the distilling process to heat the distillery, tasting room and Inn as well as recapturing that heat and water for utilization in the distilling process and for domestic use.

Renewables and Energy Supply

Reaching carbon neutrality in buildings is a two-pronged approach: first, the amount of energy buildings use needs to be reduced (see Buildings Energy sector). Once the overall demand for energy is reduced, there needs to be a transition to renewable/clean energy. This transition to clean energy is most cost-effective and feasible, once the demand is reduced. Studies are clear: the most cost-effective way to meet future clean power needs, it to reduce the demand in the first place.¹¹

Electricity is responsible for 34% of Carbondale's overall emissions. The opportunities to expand renewable energy are many: rooftop solar photovoltaic (PV) systems, solar thermal (or "solar hot water") systems, micro or pic-hydroelectric systems and biomass. In recent years the cost of these systems has declined.

On-site generation will get us part of the way to this goal but the fuel mix of the electricity suppliers has to change as well. The electricity provided by Holy Cross Energy and Xcel Energy is still largely dominated by fossil fuels. Both electric utilities rely primarily on coal-fired power plants.

Progress to Date:

- As of June 2016, there was over 1MW of solar on public buildings include Town Hall, Sopris Park, Rec Center, Third

¹¹ Energy Efficiency is the Cheapest Energy Resource
"According to a new report released today by ACEEE, energy efficiency is the cheapest method of providing Americans with electricity... "The cheapest energy is the energy you don't have to produce in the first place," said ACEEE Executive Director Steven Nadel. "Our new report shows that when utilities are examining options on how to provide their customers with cheap, clean electricity, energy efficiency is generally the best choice." Source:

<http://aceee.org/press/2014/03/new-report-finds-energy-efficiency-a>

Street Center, Carbondale Senior Housing, Roaring Fork High School, and more.

- The Town of Carbondale purchased into the Clean Energy Collective community solar array to offset usage.
- Carbondale was awarded the Solar Friendly Community designation to recognize achievements in removing regulations that serve as barriers to solar installations.

Strategies & Action Items:

- **Lead by example: expand the amount of renewable energy delivered to Town buildings**

Continue to seek out opportunities to expand on-site systems, take advantage of utility-scale solar farms, and pursue other renewable energy opportunities.

- **Accelerate the installation of renewable energy systems on homes and businesses**

Continue and expand existing solar programs, expand education and promotion of available funding mechanisms such as PACE.

- **Evaluate neighborhood or district renewable energy systems**

Explore the feasibility of district heating systems, and pilot micro-grid development

- **Advocate for comprehensive policies at the regional and state-level**

Influence, partner, and support policies, which may include more stringent renewable energy standards, improved utility infrastructure, better storage incentives, and more local community solar arrays.

[Sidebar] Solar in Carbondale

Carbondale boasts over 80 solar PV systems on homes and businesses



Transportation

By 2050 all trips need to be made by foot, bike, public transit, or clean vehicles (low or zero emissions vehicles).

Already, walking and cycling are popular ways to get around. Largely, Carbondale residents agree that bicycling in Carbondale is safe, convenient, and that there is easy access to bike paths (75% of survey respondents).¹² Accordingly, pedestrians and bicyclists are commonly seen around town. Strategies address improvements in safety, convenience, as well as making these active transportation modes fun.

What is already being done:

- The expansion of EV infrastructure and charging stations. Since 2010 public charging stations have been installed around town, including at Town Hall, Colorado Mountain College, Third Street Center, Roaring Fork High School and the RFTA Bus Rapid Transit (BRT) Station.
- Extensive programs continue to build and celebrate bike culture such as Ride Garfield County and Bike Week.
- Highway 133 improvements were designed with bikes and pedestrians in mind, improved safety and the new west-side trail with fewer driveway crossings.
- The Rio Grande Railroad Corridor, which includes the Rio Grande Trail, makes it possible for Carbondale residents to bike and walk to Glenwood and Basalt; some Carbondale residents commute by bike to other towns in region.
- RFTA continues to diversify its fuel sources, including clean diesel, compressed natural gas (CNG) and assessment of battery electric buses.

Strategies

1. Lead by example:
2. Accelerate in-town and regional efforts to encourage biking, walking, telecommuting, use of transit and carpooling (Regional Transportation Demand Management)
3. Continue to accelerate adoption of cleaner vehicles and lower-carbon options, including electric vehicles (EVs)
4. Continue progress on land-use/mobility linkages and community design strategies that support biking and walking and reduce need for driving.

¹² RFTA. CARBONDALE Travel Patterns Community Profile.

[Sidebar] Bike Culture

[Sidebar] EV Success

The momentum to increase purchases of EVs in the Roaring Fork Valley was catalyzed by an EV Sales Event where buyers received additional discounts beyond the federal and state tax credits.

Carbondale has 12 EV charging stations available free of charge in various locations within walking distance to many areas in the town.

[Sidebar] Use of Alternative Transit

Waste Reduction and Reuse

Carbon neutrality imagines a system in which there is no waste: all materials are constantly repurposed so that no trash is sent to the landfill. Under this zero waste future, debris from construction projects (wood and concrete) and discarded household goods (old electronics and furniture) are viewed as resources. The goods and the valuable materials in these goods can be recovered, reused, and recycled.

This recovery, reuse, and recycling uses less water and energy than mining virgin materials, and keeps organic items out of landfills.

When organic waste (food scraps and yard trimmings) is buried in a landfill methane, a potent greenhouse gas, is released. However, when those same decompose in a compost pile, the overall amount of greenhouse gas emissions is severely limited. Even more, those food scraps and yard trimming can be put to a better use: they can be converted into nutrient-rich soil for use in gardens.

Currently, Carbondale's trash is largely comprised of materials that could be diverted from the landfill. According to an analysis of the community's waste stream, organic materials are the biggest slice of all landfilled waste at 25% of the total.

Source: Phase I Roaring Fork Waste Diversion Plan

Progress to Date:

- A single use plastic bag "ordinance" was voted on by citizens, levying a ten cent fee on paper bags and eliminating plastic bags at grocery stores 3,500 square feet or larger (Ordinance No. 6, 2012)
- The Town supports annual community-wide recycling events and "drop off days" including Waste Diversion Day and Spring Clean Day.
- Mountain Fair, one of Carbondale's largest public festivals promotes a zero-waste culture with reusable cups, compostable dish ware, and volunteer-manned waste sorting stations.
- Education campaigns targeting proper waste disposal, including the production and distribution of the "Roaring Fork Valley Recycling Guide" and the annual Mugshot Challenge hosted by Waste Free Roaring Fork.

Strategies & Action Items:

- **Lead by example: practice reducing, reusing, recycling and composting in departments**

Practice reducing, reusing, recycling and composting in Town departments

- **Decrease the amount of recyclable and compostable materials entering the landfill**

Make recycling and composting easy, convenient, and accessible

- **Reduce waste by expanding reuse and repair initiatives**

Increase the salvage and reuse of construction and demolition (C&D) waste, and expand reuse and repair initiatives

- **Make it simple for everyone to participate in waste programs and waste goals**

Ensure easy access to information about how to reduce waste and on sustainable disposal habits, and build participation in programs through education, inspiration, and convenience

[Sidebar] Waste Diversion Day

The Town of Carbondale hosts the annual community collection event. Discounted, or even waived, recycling fees are offered to encourage the proper disposal of electronics, etc. Anecdotally, participation increased in 2016 with over 250 tires diverted, over two 28-foot trucks of electronic waste.¹³

[Sidebar] EverGreen Zero Waste

Starting in 2010, EverGreen Zero Waste, a local Carbondale business has been a resource for those looking to learn more about waste diversion opportunities, or to host a zero waste event. Last year alone, EverGreen Zero Waste hauled over a million pounds of organic materials, and it's only expected to increase. Why? According to Alyssa Reindel, "composting is an accessible, tangible activity to lessen one's impact on the environment." And EverGreen Zero Waste makes it easy.

[Sidebar] Your Stuff

Not buying goods you don't need offers the greatest carbon benefits. When you need something, consider renting, borrowing, fixing, or reusing to save money and conserve resources. Miser's Mercantile, among other thrift and consignment stores, make making thoughtful choices about the stuff we buy easy. {Insert Quote from Sam Hunter

¹³ Julia Farwell, personal communication, May 2016.

Local Food & Purchasing

Buying local is not a new idea in Carbondale -- it's part of the culture. Residents are eager to buy and grow sustainable, local food and Carbondale boasts a high concentration of local businesses, artists, and artisans. What you eat, and what you buy, matters.

Local and Sustainably Produced Food:

Food represents a large source of greenhouse gas emissions. The food system -- the production, transportation, and consumption has played a seminal role in sustainability movements. These movements have traditionally focused on the polluting fossil fuels used to transport food from far flung places, and the energy used to keep that food cold during transport, but that is just part of the story. The vast majority of emissions occur when the food is grown. Specifically, the production of dairy and meat.

Animal products contribute greater emissions per calorie of food. This is due to the water and grains necessary for raising livestock, and the significant methane emissions generated by cows. Sources go so far as to report that a widespread adoption of a vegetarian diet would cut emissions by nearly two-thirds.¹⁴

FOOD CHOICE IS A KEY FACTOR IN CARBON EMISSIONS

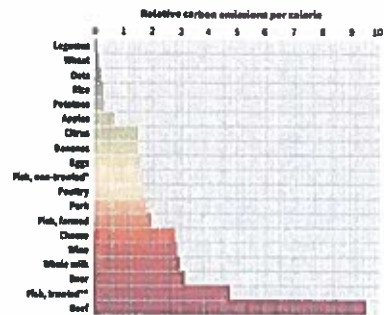


Figure 8. Carbon emissions from food choices, by calorie. Prepared by Acorn/Dr. Zachary (2016, Earthaven.org). See references for primary sources. *e.g., wild salmon, **e.g., red lobster.

On a per calorie basis, consumption of red meat results in three times the carbon emissions of cheese, nearly six times the emissions of chicken, fish, and eggs, and more than twenty times that of many grains and vegetables.

Source: *Portland CAP*

An emphasis on local production could mean:

- An increase in consumption of less-processed, lower-carbon foods including fruits, vegetables, and grains
- A decrease in the use of fossil-fuel intensive fertilizers
- A reduction in emissions related to food production, processing, distribution, and waste management

Among other benefits such as increased access to healthy food, better nutrition across the community, and ensuring safer conditions for farm workers.

Local Businesses, Artists, and Artisans:

14

<https://www.theguardian.com/environment/2016/mar/21/eat-less-meat-vegetarianism-dangerous-global-warming>

Choosing local goods and services, along with hiring local talent, stimulates a sustainable and prosperous local economy. That isn't the only benefit linked to choosing local: local producers tend to have more control over their supply chains and businesses practices, which allows them to implement green practices. This may look like cutting the carbon emissions associated with the manufacturing and transportation of goods or ensuring sustainable waste practices. Supporting local craft breweries, artist collectives encourages economic vitality, and has the potential to reduce emissions.

[Sidebar] Carbondale Arts

The creative industries play a unique role in climate action, storytellers, crafters, artists, and artisans can help inspire change. These creative enterprises also play a major role in the green economy. Carbondale Arts is a connector of local artists and local goods. Sustainable artists include Jill Scher, a felter, weaver, spinner, dyer, knitter and sewer.

[Sidebar] Farmers Market

For over a decade, local farmers, producers, and artisans gather at the Carbondale Farmers Market to provide fresh food to the community. This well-established market is a pillar of the local food system, providing an important way for local farmers and food producers to market their products. Ben Armstrong, the Market Manager, comments on the markets popularity – it's doubled in size from one block to two and hosts up to 20 vendors providing mostly local goods.

Progress to Date:

- The annual Dandelion Day celebration has turned into a festival that promotes sustainability and features local food and local companies.

- The Roaring Fork Food Alliance was formed in 2012 to create greater collaboration and planning across diverse sectors and jurisdictions of the local food system.
- In 2016 Carbondale was officially recognized as a "Creative District" due to the more than 200 creative organizations, businesses, artists and artisans residing here

Strategies & Action Items:

- **Lead by example: purchase local foods, and local products**

Support initiatives that support local food

- **Increase production, availability and consumption of locally grown food**

Expand access to make purchasing local food easier, increase food availability by supporting local growing efforts, and promote the benefits of local food and opportunities for residents to get engaged

- **Increase production, availability and consumption of local products and services**

Identify existing local products and services that are currently available, and identify the gaps of key products and services that currently unavailable

PHOTO IDEAS:

<https://www.instagram.com/explore/tags/roaringgardens/>
<https://www.tworootsfarm.com/photos/> & so many on insta with Sopris in the background: <https://www.instagram.com/p/BJviziOqRvN/> and of farmers market stands
<https://www.instagram.com/p/BAAAn2tQSXC-/?taken-by=wildmountainseeds>

9. Connection to Local, Regional, and Statewide Commitments

Ending global carbon emissions is not a challenge that Carbondale can solve alone, but Carbondale can be part of the solution.

Coordination of local, regional, state, federal, and global action, as well as partnerships, are required to address the climate challenge. In particular, local governments serve an invaluable role in modeling replicable solutions and helping its citizens take action. When communities work together, they become a powerful force.

Federal, State, and Regional Commitments

This report focuses on how the Town of Carbondale can reduce emissions locally, but acknowledges the additional significant work being done elsewhere. The efforts of the United States, Colorado, and neighboring communities can drive and enhance local efforts. For example, statewide action will reduce the carbon content of electricity through the Renewable Energy Standard, including the electricity provided to Carbondale homes and businesses. The cleaner energy resulting from this effort will be fundamental in supporting the emissions reduction efforts in Carbondale.

This section does not represent a comprehensive list of climate action efforts, but illustrates how Carbondale's efforts can support, and be supported by, federal, state, and regional efforts. Addressing climate change is most successful through partnerships, with the initiatives below providing inspiration how collaboration can drive deeper reductions.

United States Goals and Initiatives

In 2016 the United States ratified the Paris Agreement, committing to hold global temperature rise to "well below 2 degrees Celsius" above

pre-industrial levels. Following the agreement, the US submitted a national plan for curbing greenhouse gas emissions. Specifically, the US plan pledges to reduce greenhouse gas emissions 26 percent to 28 percent by 2025 (as compared to a 2005 baseline).¹⁵ One of the centerpieces of the plan is the Clean Power Plan, which set national standards on reduction carbon pollution from existing power plants (currently stayed by the Supreme Court).

Additionally, the Environmental Protection Agency has used its authority under the Clean Air Act to regulate emissions through fuel efficiency standards, and more.

Colorado Goals and Initiatives

Colorado has adopted statewide legislation to address climate change and reduce greenhouse gas emissions.

Colorado Climate Action Plan

The Colorado Climate Action Plan was developed in 2015 to meet the requirements of Colorado House Bill 12-1239. This plan articulates a strategy to reduce greenhouse gas emissions at the state agency level through state level legislation, as well as improve Colorado's ability to adapt to future climate change impacts.

Milestone greenhouse gas emissions legislation includes the following:

- Renewable Energy Standard (2004) – a first-in-the-nation initiative to require that electricity providers obtain a minimum percentage of their power from renewable energy sources.

¹⁵ Source:

<http://www4.unfccc.int/submissions/INDC/Published%20Documents/United%20States%20of%20America/1/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information.pdf>

- Emissions Reduction Commitment (2008) – formally declared emissions reduction goals of 20% by 2020 and 80% by 2050 (below 2005 levels)

- The Clean Air Clean Jobs Act (2010) – convert coal-fired power plants to natural gas and other lower emitting sources
- Regulation of methane emissions (2014) – measures for methane emissions from the state's oil and gas industry

Local Commitments

The Town of Carbondale has demonstrated a commitment to climate action, starting with pledges and efforts made over two decades ago. This *2017 Energy and Climate Action Plan*, and its more aggressive emission reduction goal, is the latest in a series of actions and represents advances in the strategies on how to best address climate change. Below is a summary of the energy and climate protection targets the Town has adopted.

Mayor's Climate Protection Agreement (2005)

The Town of Carbondale joined the Cities for Climate Protection Campaign by adopting the US Mayor's Climate Protection Agreement. The Agreement outlined the threat posed by climate change, and the preventative steps cities could take, resulting in a commitment to developing an emissions reduction strategy.

Community Office for Resource Efficiency (CORE) membership (2005)

The Town of Carbondale became a member of CORE in 2005 and has continued this membership through in 2017. CORE helped the town as it began its initial endeavors in energy efficiency and renewable energy. The Town joined other communities including the City of Aspen, Holy Cross Energy, Pitkin County, Snowmass Village and KN Energy (now Black Hills Energy) in guiding development of CORE's programs and policies.

Membership provides the Carbondale community access to financial and technical incentives. For homeowners, cash back rebates are provided for energy efficiency upgrades and renewable energy systems. For businesses, public entities, and nonprofit organizations, rebates and grants are available for carbon reduction projects.

In addition a Town Trustee sits on the CORE Board of Trustees.

Energy and Climate Protection Plan (2006)

In 2006 the Town moved forward developing and adopting an emissions reduction strategy, the *Energy and Climate Action Plan*. Through community meetings involving over 150 citizens, the following goals were developed to guide emission reduction efforts:

- Reduce emissions directly attributable to Town facilities and Town operations by 25% by 2010 through increasing energy efficiency in all buildings and operations, and increasing the percentage of renewables.
- Reduce community-wide CO2 emissions by 25% below our 2004 base year by 2012.
- Turn emissions reduction efforts into an economic advantage by reducing household, business, and local government energy bills; keeping more money currently spent on energy flowing in the local economy; and investing in existing jobs/creating jobs tied to sustainable energy.
- Leverage community investments to obtain 25-50% of non-community funds or significant investment returns to create the new economic activity, through installations of renewable energy production on municipal facilities, homes, and businesses.
- Obtain at least 30% of our energy for heating and electricity from renewable sources by 2015.
- Develop a resource-efficient building ethic in Carbondale to serve as a model for other communities.

Garfield Clean Energy (2009)

Garfield Clean Energy Collaborative (which, grew out of Garfield New Energy Communities Initiative) is an intergovernmental authority which uses energy efficiency, renewable energy and alternative fuels to build a more resilient economy. In addition to the Town of Carbondale, GCE is comprised of the following members: Garfield County, the Town of Parachute, City of Rifle, Town of Silt, Town of

New Castle, City of Glenwood Springs, Roaring Fork Transportation Authority and Colorado Mountain College.

As a member of Garfield Clean Energy, the town adopted the following goals:

1. Increase per capita energy efficiency by 20% by 2020 over a 2009 baseline.
2. Reduce petroleum consumption 25% by 2020 over a 2009 baseline.
3. Obtain 35% of energy from renewable sources by 2020 over a 2009 baseline.

All as a means to a stronger, more resilient, energy-secure economy.

Garfield Energy Action Plan (2017)

The Energy Action plan launched energy efficiency and renewable energy action planning county-wide. Through Xcel Energy's Partner in Energy Savings program, this plan was developed with input from all municipalities in Garfield County, CLEER, utilities, and local contractors. The adoption of this plan commits Carbondale to the following goals:

Collaborating with local governments, utilities, non-profit organizations, and businesses, GCE's overarching goal will be to achieve 20 percent increase in energy efficiency over the Garfield 2015 baseline by 2030 and to obtain between 35 and 50 percent of energy from renewable sources by 2030

Links to existing plans and resources

Existing Carbondale policies/master plans/etc

Carbondale Comprehensive Plan,
UDC, Unified Development Code
Water Management Plan,
Parks & Rec Master Plan

Regional/State plans that impact Carbondale

Garfield Clean Energy: Energy Action Plan
RFTA Transit studies,
Waste Studies
Water Studies

10. Appendix A: Inventory Data & Tools
11. Appendix B: Status of 2006 actions steps, progress to date
12. Appendix C: Building Energy Action Steps
13. Appendix D: Energy Supply & Renewable Energy Action Steps
14. Appendix E: Transportation
15. Appendix F: Waste Reduction & Reuse Action Steps
16. Appendix G: Local Food & Purchasing Action Steps
17. Appendix H: Financing and Economic Development