



# An Energy Action Plan Update for Garfield Clean Energy

January 2023



# ACKNOWLEDGEMENTS

Thank you to the following individuals who contributed many hours of service to developing this Energy Action Plan. This planning process was led by Xcel Energy Partners in Energy and Garfield Clean Energy. Garfield Clean Energy contracts CLEER to develop and deliver its programs and services. CLEER (Clean Energy Economy for the Region) is a regional 501c3 organization that provides programs and tools to help western Colorado communities reach adopted clean energy targets with an emphasis on economic development and economic diversification.

## Community Stakeholders

Adrian Fielder	Jean Brown
Alex Degolia	Katherine Rushton
Allyn Harvey	Kevin Hillmer-Pegram
Beatriz Soto	Kyle Lord
Blake Nunley	Lani Kitching
Caroline Casteel	Larry Bogatz
Carolyn Tucker	Lindsey Williams
Chris Norton	Maisa Metcalf
Doug Jones	Mary Weiner
Ed Holland	Pat Hunter
Emily Hoskins	Phil Armstrong
Fred Malo	Stephaine Erwin
Fred Porter	Tinker Duclou
Hanna Arauza	Tyler McDermott
Hannah Berman	Vance Holzmann
Heather McGregor	Will Hodges

## Garfield Clean Energy Staff (CLEER) Team

Alice Laird	CLEER Executive Director
Christina Matzl	CLEER Clean Energy Program Associate
Dave Reed	CLEER Communications Director
Heidi McCullough	CLEER Buildings Specialist
Martín Bonzi	CLEER Transportation Programs Manager

## Xcel Energy Partners in Energy Team

Tami Gunderzik	Partners in Energy Program Manager
Brad McCloud	Xcel Energy Area Manager
Imogen Ainsworth	Partners in Energy Community Facilitator
Lynn Jemison	Partners in Energy Community Facilitator
Jessica Sharkey	Partners in Energy Data Lead

## Garfield Clean Energy Board

Travis Elliot	Town of Parachute
Mark King (alternate)	Town of Parachute
Sean Strode	City of Rifle
Keith Richel	Town of Silt
Bruce Leland	Town of New Castle
Ingrid Wussow	City of Glenwood Springs
Shelley Kaup (alternate)	City of Glenwood Springs
Ben Bohmfalk	Town of Carbondale
Lani Kitching (alternate)	Town of Carbondale
Tom Jankovsky	Garfield County
Frank Coberly (alternate)	Garfield County
Jason White	Roaring Fork Transportation Authority
Sean Nesbitt	Colorado Mountain College
Jerrold Kochevar (alternate)	Colorado Mountain College
Jenna Wetherred	Holy Cross Energy

# TABLE OF CONTENTS

Acknowledgements.....	i
Introduction.....	1
Why an Energy Action Plan Update.....	1
Planning Process.....	1
About Partners in Energy.....	1
About Garfield Clean Energy.....	2
Where We Are Now.....	3
Community Characteristics.....	3
History.....	3
Population and Growth.....	3
Housing and Demographics.....	5
Existing Energy Efforts.....	5
Energy Data.....	5
Multiple Utility Providers.....	5
Community Energy Use.....	7
Community Use Trends Since 2015.....	9
Greenhouse Gas Emissions.....	11
Renewable Energy.....	13
Energy Program Participation & Savings.....	15
Mobility.....	17
Where We Are Going.....	18
Garfield County’s Energy Vision and Mission.....	18
Plan Goals.....	19
How We Are Going To Get There.....	21
Goal 1: Energy Savings.....	21
Focus Area: Residential Sector.....	22
Focus Area: Commercial, Agricultural, and Industrial Sector.....	22
Focus Area: Public Institutions.....	23
Goal 2: Carbon-Free Electricity.....	24
Focus Area: On-Site Solar.....	25
Focus Area: Community-Scale Solar.....	25

Focus Area: Carbon-Free Grid.....	26
Focus Area: Other Locally-Based Renewable Energy Sources .....	26
Goal 3: Clean Mobility.....	27
Focus Area: Transportation Electrification.....	27
Focus Area: Increase Biking, Walking, Transit Mode Share.....	28
Goal 4: Greenhouse Gas Emissions .....	30
Focus Area: Building Electrification .....	30
Goal 5: Clean Energy Economic Development and Jobs.....	32
Focus Area: Mobilizing Funding, Incentives, and Investment.....	32
Focus Area: Education, Training, and Capacity Building .....	33
Focus Area: Policy and Innovation .....	33
Implementation .....	34
Project Management.....	34
Data Reporting and Tracking .....	34
Appendix A: Available and Anticipated Resources .....	A-1
Appendix B: Strategy Metrics & Partners .....	B-1
Appendix C: Glossary of Terms .....	C-1

---

This Energy Action Plan was funded by and developed in collaboration with Xcel Energy’s Partners in Energy. Partners in Energy shall not be responsible for any content, analysis, or results if Garfield Clean Energy has made modifications to the plan.

---



# GARFIELD COUNTY 2022 ENERGY ACTION PLAN UPDATE



## About this Plan

Since 2009, Garfield Clean Energy (GCE) has been an innovative leader in advancing energy efficiency, renewable energy, and clean transportation to protect the environment and build a strong, resilient, and diverse economy. This update to Garfield County’s 2017 Energy Action Plan (EAP) was developed in 2022 to take stock of progress made over the last five years and set a vision for the next phase of energy action. Over the course of seven months, an Energy Action Team formed of community stakeholders participated in a series of three workshops facilitated through Xcel Energy’s Partners in Energy program. The plan outlines updated energy goals for Garfield County and defines strategies and tangible steps Garfield Clean Energy and collaborative partners can take to accelerate progress toward those goals.

## Garfield Clean Energy Vision

GCE will be an innovative leader in advancing energy efficiency, renewable energy, and clean transportation to protect the environment and build a strong, resilient, and diverse economy.

## Energy Baseline

The Energy Action Team used historic energy data from 2015 – 2021 to inform goal and strategy development, and established 2019 as the updated baseline year<sup>1</sup>. In 2019, Garfield County used:



**4.3 million MMBtu** of energy<sup>2</sup> totaling \$65 million (54% residential and 46% C&I)



**26 million therms** of natural gas



In December 2022, there were **602 electric vehicles** on the road



**314,000 MT CO<sub>2</sub>e** of energy related supply GHG emissions



**471 million kWh** of electricity

<sup>1</sup> 2019 was used as the baseline year to mitigate for the impacts of COVID-19 on energy use during 2020 and 2021.






<sup>2</sup> 2022 was used as the baseline for electric vehicles to reflect the recent growth and adoption.

<sup>2</sup> MMBtu (one million British Thermal Units) is a measure of the energy content in electricity and natural gas.



# Energy Action Goals and Focus Areas

Working together, the GCE Board of Directors and the Energy Action Team identified the following 5 goals, 15 focus areas, and 47 strategies to help GCE achieve its vision.

GOALS	SUMMARY	FOCUS AREAS
ENERGY SAVINGS 	<ul style="list-style-type: none"> <li>Achieve energy efficiency and conservation savings resulting in at least 12 percent total energy savings by 2030 over a 2019 baseline, which will require an average of at least 1.5 percent total annual energy use reduction from 2023 through 2030. As technology and funding improves, work for increased total savings.</li> </ul>	<ul style="list-style-type: none"> <li>Residential Sector</li> <li>Commercial, Agricultural</li> <li>Industrial Sector</li> <li>Public Institutions</li> </ul>
CARBON-FREE ELECTRICITY 	<ul style="list-style-type: none"> <li>Garfield County electricity will be 100 percent carbon-free by 2030 through grid-supplied resources and local renewable installations, as a means to a stronger, more resilient, and energy-secure economy and region.</li> </ul>	<ul style="list-style-type: none"> <li>On-Site Solar</li> <li>Community-Scale Solar</li> <li>Carbon-Free Grid</li> <li>Locally-Based Renewable Energy Sources</li> </ul>
CLEAN MOBILITY 	<ul style="list-style-type: none"> <li>Transition at least 15 percent of all registered vehicles to zero-emissions electric by 2030; support alternative fuels where electric is not yet feasible or where alternative fuels are desirable; help increase mode share for biking, walking, and transit.</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Electrification</li> <li>Increase Biking, Walking</li> <li>Transit Mode Share</li> </ul>
GREENHOUSE GAS EMISSIONS 	<ul style="list-style-type: none"> <li>Reduce GHG emissions related to the electric supply by 100% by 2030.</li> <li>Reduce GHG emissions related to natural gas usage, as well as related to utilities' commitment to cleaner delivery and supply, by 10% by 2030.</li> </ul>	<ul style="list-style-type: none"> <li>Building Electrification</li> </ul>
CLEAN ENERGY ECONOMIC DEVELOPMENT AND JOBS 	<ul style="list-style-type: none"> <li>Accelerate and harness the economic benefits of energy efficiency, clean energy, and clean mobility for the benefit of the residents and communities of Garfield County; find ways to address any economic impacts of transitioning to clean energy.</li> </ul>	<ul style="list-style-type: none"> <li>Mobilizing Funding, Incentives, and Investment</li> <li>Education, Training, and Capacity Building</li> <li>Policy and Innovation</li> </ul>

# INTRODUCTION



## Why an Energy Action Plan Update

In 2017, Garfield Clean Energy (GCE) worked with Xcel Energy Partners in Energy to convene a group of community stakeholders to create an Energy Action Plan (EAP) for Garfield County.

Over the last five years, tremendous progress has been made on energy efficiency and renewable energy projects and programs outlined in the 2017 Energy Action Plan, so in 2022 GCE chose to embark on a plan update. The purpose of creating this Energy Action Plan update is to take stock of progress made and set the vision for the next phase of energy action. This plan outlines updated energy goals for Garfield County, developed in the context of new technologies and best practices, shifting local priorities, and energy trends since 2017. The plan also provides updated strategies and tangible steps that GCE and collaborative partners can take to continue and accelerate progress toward those goals.

## Planning Process

The creation of this Energy Action Plan update was a seven-month process to help our community evaluate progress toward the 2017 Energy Action Plan goals, assess changing patterns in energy use, update and conform our energy-related goals, and develop engaging strategies to guide the next phase of progress toward our energy future.

Starting in April 2022, the Energy Action Plan update was driven by a series of planning workshops held in the community, with an Energy Action Team committed to representing local energy priorities in collaboration with GCE and Xcel Energy Partners in Energy. Over the course of the plan development phase, we engaged 51 participants throughout 3 workshops and 60 survey responses from community members.

## About Partners in Energy

Xcel Energy is an electric and natural gas utility providing energy to power millions of homes and businesses across eight Western and Midwestern states. Each community Xcel Energy serves has its own unique priorities



and vision for its energy future. To continue to innovatively support its communities, Xcel Energy launched Partners in Energy in 2014 as a collaborative resource with tailored services to complement each community's vision. The program offerings include support to develop an Energy Action Plan, tools to help implement the plan, and resources designed to help each community stay informed and achieve their goals.

## **About Garfield Clean Energy**

GCE is an independent local government authority overseeing programs and services to help residents, businesses, and local governments become more energy efficient and tap clean energy as a means to creating a stronger, more resilient economy. The programs and services of GCE are managed by Clean Energy Economy for the Region (CLEER), a non-profit organization working to accelerate the transition to a clean energy economy, increase independence, and reduce our contribution to climate change.

GCE is a collaborative of the following entities:

- **Garfield County**
- **Town of Parachute**
- **City of Rifle**
- **Town of Silt**
- **Town of New Castle**
- **City of Glenwood Springs**
- **Town of Carbondale**
- **Colorado Mountain College**
- **Roaring Fork Transportation Authority**
- **Holy Cross Energy**

# WHERE WE ARE NOW



To better understand what we want Garfield County’s energy future to look like, we must first understand the regional context and existing energy landscape. This section includes an overview of Garfield County community characteristics and existing energy efforts, followed by a summary of energy data trends.

## Community Characteristics

### History

For centuries, Garfield County was home to the Ute tribe, whose people roamed throughout western Colorado and eastern Utah. As American miners and settlers spread westward in the 1800’s, the U.S. government attempted to contain the Utes in land reservations. Conflicts, battles, and broken treaties ensued, and the Utes were forced onto their current reservations in 1879. In 1883, eight years after Colorado became a state, Garfield County was founded and named in honor of James Garfield, the 20<sup>th</sup> President. In the late 1800s, the county experienced a mining boom, initially for carbonate, and in 1883 Glenwood Springs was named as the county seat.

### Population and Growth

Garfield County covers 2,958 square miles; about 60 percent of all land in Garfield County is federally owned. There are six towns and cities within Garfield County<sup>1</sup> (Figure 1).

---

<sup>1</sup> [ACS Community Survey Population Estimates](#) for 2017 and 2020

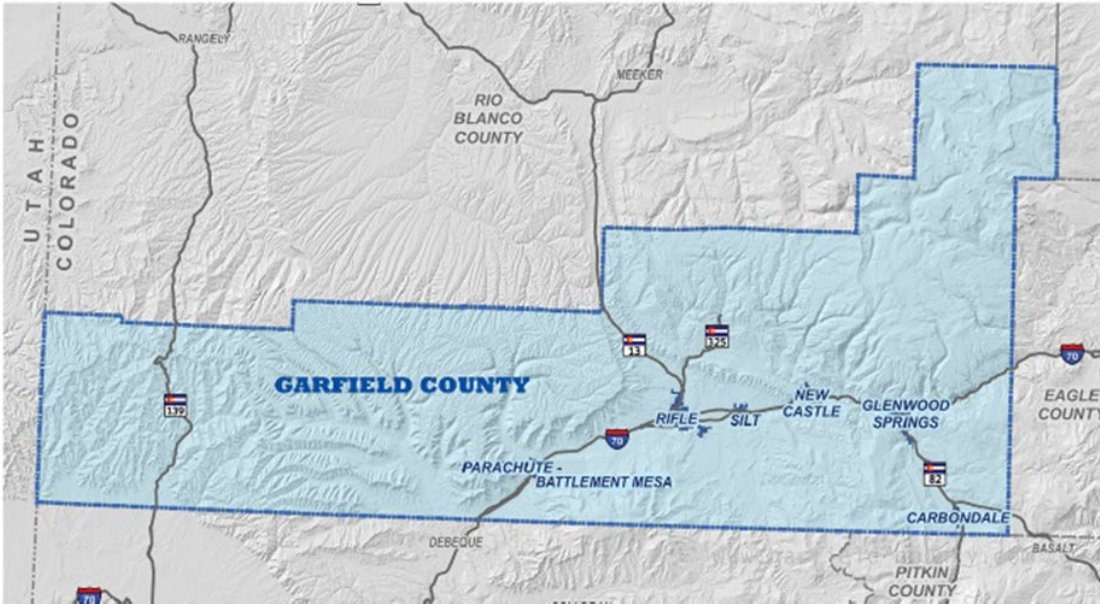


Figure 1. Garfield County boundary and incorporated towns and cities (Garfield County Colorado Land Explorer)

As Table 1 shows, the population of Garfield County has grown since Garfield County’s first Energy Action Plan; and, the county population is projected to continue increasing - from 61,780 in 2020 to 71,971 by 2030 and to 86,470 by 2040<sup>2</sup>. However, population growth is occurring at different rates across Garfield County, with a shift in the population center to the western part of the county. The area from New Castle to Parachute is projected to account for approximately 54 percent of the county’s growth from 2017 – 2030 while the towns of Carbondale and Glenwood Springs are anticipated to account for 21 percent of future growth<sup>3</sup>.

Table 1. Population growth by Jurisdiction

Jurisdiction	2017 Population	% of 2017 County Population	2020 Population	% of 2017 County Population	% Growth
Glenwood Springs	9,735	17%	10,030	16%	3%
Carbondale	6,358	11%	6,443	10%	1%
New Castle	4,523	8%	4,918	8%	9%
Rifle	10,039	17%	10,423	17%	4%
Parachute	1,283	2%	1,387	3%	8%
Silt	3,348	6%	3,538	6%	6%
Unincorporated Garfield County	23,585	40%	25,041	41%	6%
<b>Total</b>	<b>58,871</b>		<b>61,780</b>		

<sup>2</sup> Garfield County population projections downloaded from the [Colorado State Demography Office](#)

<sup>3</sup> Garfield County Comprehensive Plan

## Housing and Demographics

Housing and demographic characteristics vary across Garfield County and may impact the most effective approach to energy action.

26 percent of Garfield County residents over the age of 5 speak a language other than English at home, indicating that language may be a barrier for some residents to participate in energy-related programs.

Income and housing characteristics can also impact access to energy programs since homeowners have more incentive and ability to make efficiency and other improvements to their homes than do renters. While 68 percent of housing units in Garfield County are owner-occupied, the rate of homeownership varies significantly across the county, as shown in Table 2.

Table 2. Housing ownership, price and household income by Jurisdiction

Jurisdiction	Percentage Owner-Occupied Housing Units	Median Housing Price	Median Household Income (2020 inflation-adjusted \$)
Glenwood Springs	49.2%	\$ 436,700	\$ 66,860
Carbondale	60.6%	\$ 645,000	\$ 85,580
New Castle	70.1%	\$ 384,800	\$ 82,125
Rifle	65.7%	\$ 275,700	\$ 66,176
Parachute	47.6%	\$ 194,600	\$ 49,302
Silt	67.5%	\$ 301,900	\$ 59,477
Garfield County	67.5%	\$ 375,600	\$ 75,435

## Existing Energy Efforts

Since 2009 GCE has helped nearly 1,500 households make upgrades that now save them more than \$700,000 annually on their energy bills. Similarly, GCE has assisted in more than 450 business, nonprofit, and government facility projects - generating \$1.5 million in annual savings. GCE's activities have helped stimulate \$50 million in local investment; and its energy-efficiency projects alone are cutting carbon emissions equivalent to taking nearly 12,000 vehicles off the road.

## Energy Data

An integral part of the Partners in Energy planning process is reviewing historic energy data that informs the county's energy baseline. Looking at energy trends, especially in conjunction with other contextual trends – for instance, weather, population growth, or existing energy efforts – tells a story about Garfield County's energy challenges and opportunities. During Garfield County's first round of participation in Partners in Energy, historical energy data were gathered and charted for 2013-2015, with 2015 utilized as the original baseline year. The new data effort built off the initial baseline to demonstrate trends and progress toward goals, as well as to highlight new opportunities for community action and initiatives.

## Multiple Utility Providers

Garfield County is home to multiple energy providers. In addition to Xcel Energy, community members in Garfield County may receive energy services from Holy Cross Energy, City of Glenwood Springs, or Black Hills Energy, with each utility having a unique service area in the county. Table 3 displays the relative service

percentages by utility provider, based on the reported premise (customer units as defined by utility companies) counts.

Table 3. Average service percentages by utility based on premise count

Electricity Service	Natural Gas Service
Xcel Energy (51%)	Xcel Energy (49%)
Holy Cross Energy (27%)	Black Hills Energy (51%)
City of Glenwood Springs (22%)	

All providers supplied various levels of detail around area energy use, participation counts in utility energy conservation programs, associated energy savings, and renewable on-site capacity. Grand Valley Power and Yampa Valley Power serve small areas in Garfield County but were not factored into the analysis.

Xcel Energy supplies both electricity and natural gas to the communities of New Castle, Parachute, Rifle, and Silt, electricity only to part of the community of Carbondale, and gas only to Battlement Mesa. Holy Cross Energy supplies electricity to the communities of Carbondale, Parachute, and Battlement Mesa, along with unincorporated Garfield County south of I-70. City of Glenwood Springs supplies electricity to a boundary outside the city limits of Glenwood Springs, including No Name. Black Hills Energy supplies natural gas to the communities of Glenwood Springs and Carbondale, along with unincorporated homes in the Roaring Fork Valley. Table 4 summarizes the utility providers in Garfield County and the communities they serve, where “E” indicates electricity provider and “G” indicates natural gas provider.

Table 4. Utility service provider by Community

Community	Xcel Energy	Holy Cross Energy	City of Glenwood Springs	Black Hills Energy
Glenwood Springs			E	G
Carbondale	E	E		G
New Castle	E & G			
Rifle	E & G			
Parachute	E & G	E		
Silt	E & G			
Battlement Mesa	G	E		

## Community Energy Use

Historic energy data for the period 2019-2021 were analyzed to find occasions to reduce energy use, save money, and transition to renewable energy - with 2019 serving as the adjusted baseline year to mitigate impacts associated with the 2019 Novel Coronavirus disease (COVID-19) in years 2020 and 2021. Figure 2 displays sector level comparisons around premise count and total energy consumption, as well as a breakout of electric and natural gas consumption.

There were approximately 42,576 premises (customer units as defined by utility companies) in Garfield County as of 2019. Of these, 83 percent were residential, and 17 percent were commercial and industrial premises. While only 17 percent of premises were commercial/industrial facilities, these premises accounted for nearly 50 percent of total energy use in the county. Residential premises are 83 percent of utility premises but use about 50 percent of the total energy.

In total, approximately 471 million kWh of electricity and 26 million therms of natural gas were consumed in 2019, totaling a combined 4.3 million MMBtu. Residential customers accounted for 45 percent of total electricity use and 59 percent of total natural gas use, while commercial customers accounted for 55 percent of total electricity use and 41 percent of total natural gas use.

### 15/15 RULE

Utility customer information is protected by the State of Colorado Public Utilities Commission (PUC). When Partners in Energy is processing energy data, the program is required to maintain data security and protect customer privacy. The PUC requires that, at a minimum, a particular aggregation must contain at least fifteen customers and that no single customer's data or premise may comprise 15 percent or more of the total aggregated data.

Any entity that violates these two conditions is removed from the reported data set. Additional information on the 15/15 rule and other rules regulating electric and gas utilities can be found here:

[Electric Utilities Rules \(3033a\)](#)

[Gas Utilities Rules \(4033\)](#)

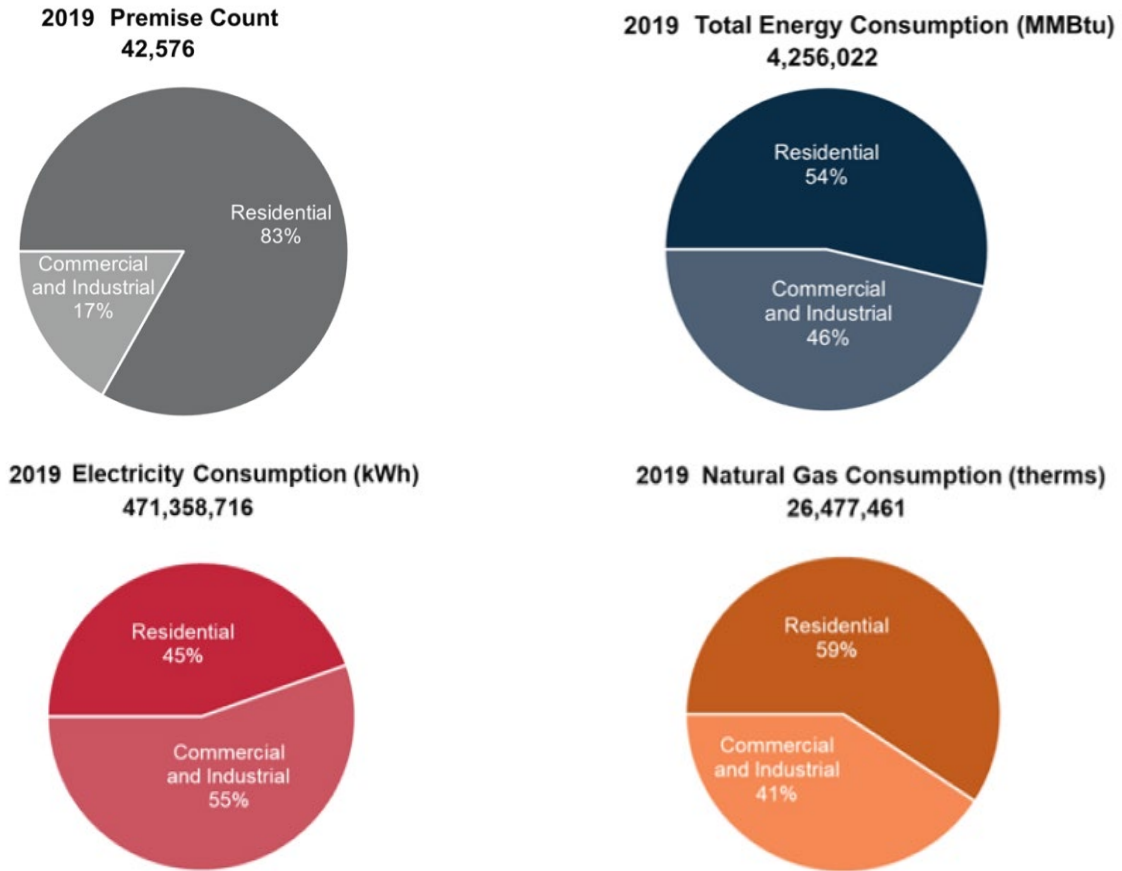


Figure 2. 2019 Garfield County Energy Use by Sector

Energy costs in 2019 totaled nearly \$65 million dollars, with residential customers accounting for 51 percent of that total and commercial/industrial customers representing 49 percent (Figure 3). On average, residential monthly energy cost totaled \$78 per premise and commercial/industrial monthly energy cost totaled \$369 per premise.

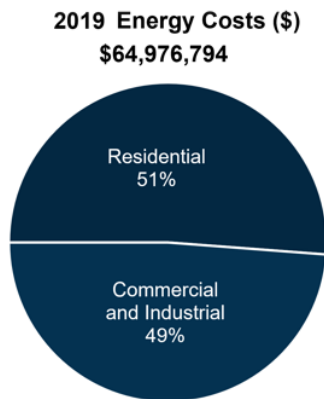


Figure 3. 2019 Garfield County Energy Costs by Sector

### Community Use Trends Since 2015

Historic energy data back to the original 2015 energy baseline was reviewed to identify trends and understand Garfield County’s current energy challenges and opportunities. Figure 4 shows that natural gas consumption across Garfield County grew 14 percent between 2015 and 2021. This increase in usage outstripped the growth in the number of natural gas premises served, indicating opportunities for improved energy efficiency practices.

While the number of premises with natural gas service increased from 21,356 in 2015 to 22,044 in 2021, residential and commercial natural gas use increased by 15 and 13 percent respectively over the same period. Average residential natural gas use per premise increased by nearly 2 percent annually and average commercial use increased annually by almost 5 percent. Overall, heating degree days<sup>4</sup> have dropped by 245 when comparing 2021 to 2015 but the County is not seeing a commensurate drop in natural gas usage, signaling that weather is not the primary driver of consumption in the County (Figure 4).

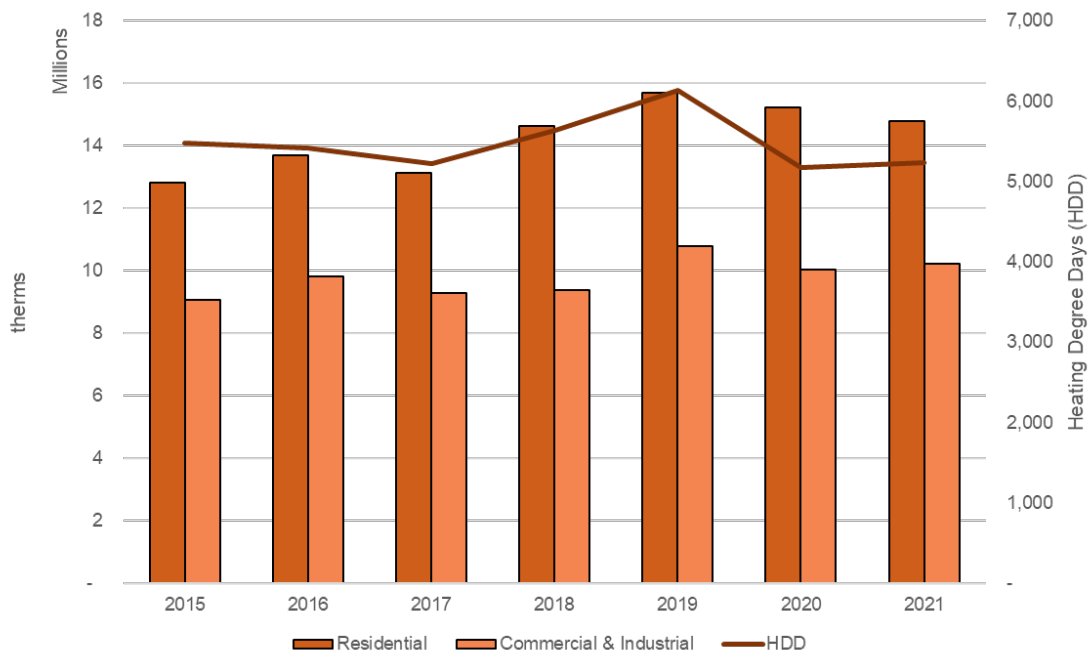


Figure 4. Annual Natural Gas Consumption (therms) by Sector

Figure 5 shows that electricity consumption across Garfield County only grew approximately 3 percent between 2015 and 2021. This increase in usage outstripped the growth in the number of electric premises served, indicating opportunities for improved energy efficiency practices, primarily on the residential side. The

<sup>4</sup> Degree days are a measure of how cold or warm the temperature was over a period. A high number of heating degree days generally results in higher levels of energy use for space heating, while a high number of cooling degree days generally results in higher levels of energy use for space cooling.



number of premises served electricity decreased from 29,519 in 2015 to 29,283 in 2021. The number of both residential and commercial premises decreased by approximately 1 percent between 2015 and 2021.

2021 residential electricity use increased by 11 percent when compared to 2015, while 2021 commercial electricity use decreased by nearly 4 percent since 2015. Some of this change could be attributed to COVID-19 impacts, as more residents were working from home. On a per-premise basis, average residential customer electricity use increased annually by 1 percent from 2015 to 2021 and average commercial use remained flat. Overall, cooling degree days<sup>5</sup> have increased by 71 days when comparing 2021 to 2015, representing an 8 percent increase. This trend signaled that weather is likely a primary driver of usage for residents and that the commercial sector is utilizing conservation measures that are negating weather changes. (Figure 5).

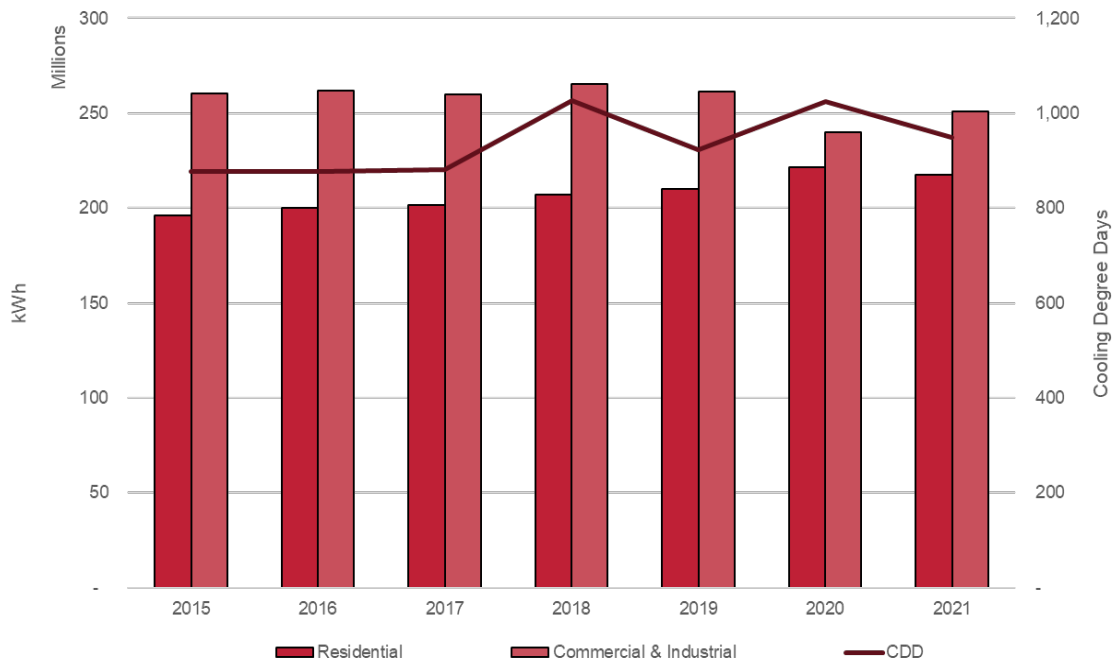


Figure 5. Annual Electric Consumption (kWh) by Sector

Figure 6 shows that total energy consumption across all service providers in Garfield County grew 10 percent between 2015 and 2021, with an average annual increase of nearly 2 percent. During this time, the total premise count in the service territory increased by nearly 1 percent. Residential energy use increased by nearly 14 percent between 2015 and 2021, with an average annual increase of over 2 percent; commercial

<sup>5</sup> Degree days are a measure of how cold or warm the temperature was over a period. A high number of heating degree days generally results in higher levels of energy use for space heating, while a high number of cooling degree days generally results in higher levels of energy use for space cooling.

use increased by nearly 5 percent, with an average annual increase of nearly 1 percent. The overall increase seen in total energy use within the county is primarily due to higher natural gas consumption.

In addition, Figure 6 displays cost trends for the residential and commercial/industrial sectors. In 2021, energy costs totaled nearly \$68.6 million dollars, with residential customers accounting for 53 percent of that total and commercial/industrial customers representing 47 percent. This is a 7 percent cost increase since 2015.

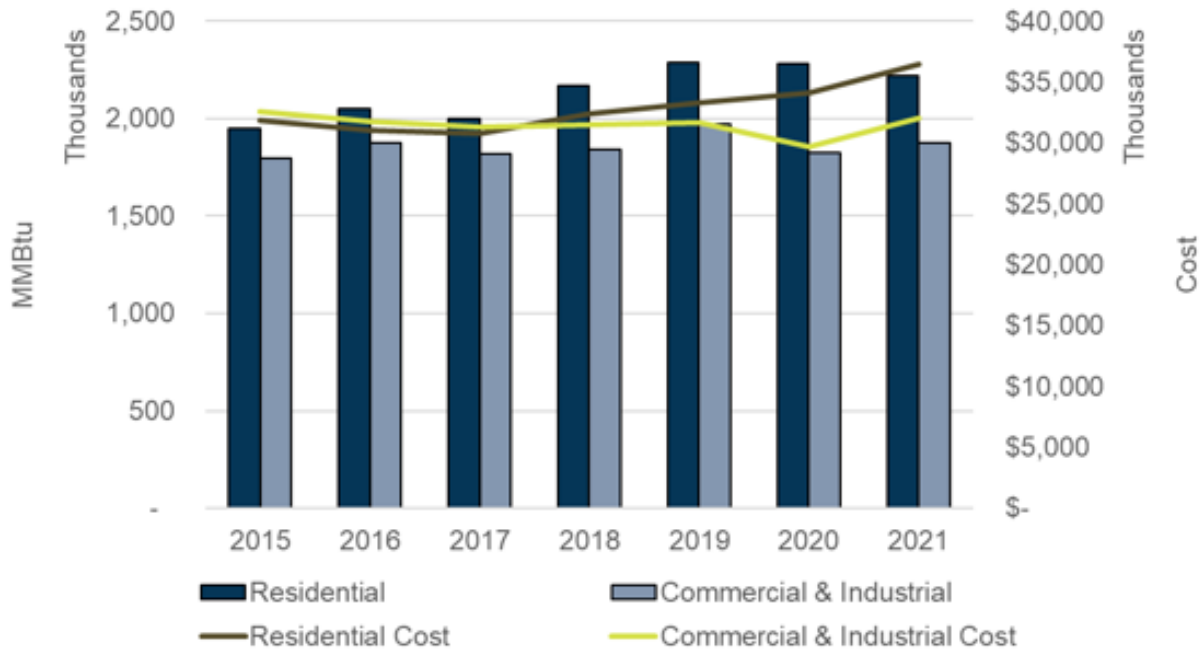


Figure 6. Annual Energy Consumption (MMBtu) & Cost by Sector

### Greenhouse Gas Emissions

Electric and natural gas consumption contributes to the community’s carbon footprint through greenhouse gas (GHG) emissions. In 2019, GHG emissions totaled over 314,000 metric tons (MT) of carbon dioxide equivalent (CO<sub>2</sub>e). This GHG estimate only considered the emissions associated with electric and gas usage in the County. Transportation emissions and other emission scopes were not included in the annual estimate.

Since 2015, total GHG emissions have continued to decrease. As noted in Figure 7, 2021 GHG emissions associated with electricity have decreased by 49 percent when compared to 2015. This decrease is primarily due to electric service providers adding renewable energy sources to lower the emissions associated with using electricity over time, resulting in decreased GHG emissions. The largest decrease noted in 2019 is based on Xcel Energy and Holy Cross working to clean up grid-supplied power and the City of Glenwood Springs transitioning to 100% renewable resources.

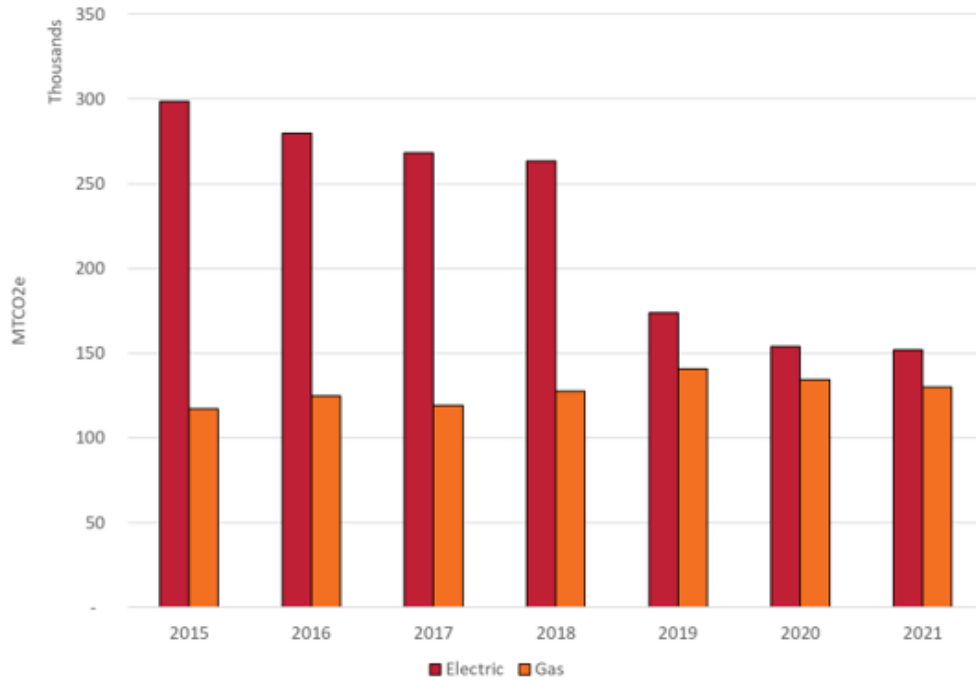


Figure 7. Electric and Natural Gas Greenhouse Emissions (MTCO2e)

Xcel Energy and the other electric service providers in the County are committed to becoming 100 percent carbon free.

Table 5 shows the carbon-free goals by electric utility service provider. These commitments will help the County achieve their carbon-free and GHG goals. In addition to reduced carbon intensity of grid-supplied electricity by utilities, participation in utility renewable energy programs, investing in energy efficiency improvements, and implementing renewable energy installations within the County will continue to help lower the community’s electric GHG footprint.

**CARBON-FREE ELECTRICITY**

The term “carbon-free electricity” reflects Xcel Energy’s and other utility providers’ commitment to transitioning to electric resources that emit zero carbon dioxide emissions.

Table 5. Electric Utility Goals

ELECTRIC PROVIDER	CARBON-FREE GOALS
Xcel Energy	80% carbon-free by 2030 and 100% carbon-free electricity by 2050
Holy Cross Energy	100% carbon-free electricity by 2030
City of Glenwood Springs	100% carbon-free supply mix in 2019

2021 GHG emissions associated with natural gas consumption have increased by 11 percent since 2015 (Figure 7 above). This increase is due to higher natural gas usage by residents and businesses in the region. The natural gas service providers for the County have established goals around reducing the GHG emissions, equating to a cleaner supply. Table 6 shows the GHG commitments by natural gas service provider.

Table 6. Gas Utility Goals

GAS PROVIDER	GHG REDUCTION GOALS
Xcel Energy	Reduce GHG emissions by 25% by 2030; net zero by 2050
Black Hills Energy	Net zero natural gas emissions by 2035

### Renewable Energy

All Xcel Energy electricity customers benefit from grid decarbonization efforts through the Certified Renewable Percentage (CRP) program. The CRP program certifies a value that represents the percentage of electricity supplies for which renewable energy credits (RECs) were retired on behalf of all customers. All electricity customers can claim this percentage of electricity as coming from renewable energy sources without any additional action or cost.

Based on Xcel Energy’s CRP program estimates, as well as renewable commitments by Holy Cross Energy and City of Glenwood Springs, Garfield County’s electricity supply is expected to have increased from 46 percent renewable electricity in 2019 to 56 percent in 2021. In 2030, when Garfield County is committed to achieving 100 percent carbon-free electricity, over 90 percent of the electricity supplied to the region is projected to be carbon-free, leaving 10 percent for the County to supply through voluntary renewable energy programs or local renewable energy installations.

### 24/7 - HOURLY MATCHING OF ELECTRICITY

During the planning process, the idea of 24/7 carbon-free electricity was discussed as a goal. The term 24/7 carbon-free electricity means that every kilowatt-hour of electricity consumed is supplied with zero carbon dioxide emitting resources – every hour of every day. It requires real-time accounting and matching of hourly supply make-up with demand data for the region. Instead of paying for electricity as produced, a 24/7 power purchase agreement (PPA) - that outlined the agreed-upon standards and would likely come at a premium – with the utility would be necessary. Holy Cross Energy and City of Glenwood Springs are committed to be 100 percent carbon-free by 2030. Xcel Energy plans to exceed their goals and being 80 percent carbon-free by 2030. The remaining gap to 100 percent carbon-free electricity for Garfield County can be met with voluntary renewable resources.

As of 2022, Xcel Energy offers five voluntary renewable electricity programs that customers can subscribe to in fulfillment of their carbon-free electricity goals. Three of the programs (Windsource®, Renewable\*Connect®, and Net Metering®) allow subscribing customers to claim the renewable electricity benefit by having Xcel Energy retire RECs on their behalf. Subscribing to these programs allows customers to sum the CRP value with their subscription values, to represent their total renewable electricity supplies. For the remaining two programs (Solar\*Rewards® and Solar\*Rewards Community®), Xcel Energy pays an incentive to subscribing customers in exchange for Xcel Energy retaining the renewable electricity benefit.<sup>6</sup> Subscriptions to these programs contribute to the CRP program and are not additive – and therefore do not benefit the County’s carbon-free electricity goal – above and beyond the CRP value. Garfield County’s cumulative renewable energy production associated with the five voluntary programs is listed in Table 7.

Table 7. 2019-2021 Xcel Energy Cumulative Renewable Energy Production by Program (kWh)

Renewable Program <sup>7</sup>	2019	2020	2021
Windsource®	1,756,015	2,181,803	2,235,508
Renewable*Connect	231,987	234,478	200,276
On-Site Net Metering <sup>8</sup>	n/a	n/a	n/a
Solar*Rewards <sup>9</sup>	8,778,987	9,315,140	9,489,151
Solar*Rewards Community	5,308,424	8,483,041	8,776,058

Data associated with all renewable energy programs offered by City of Glenwood Springs and Holy Cross Energy were not readily available for analysis. However, all electric service providers shared residential and commercial local solar system capacity totals by year. In 2021, over 3,400 kW of solar capacity was installed at residential and commercial sites; this is more than double the on-site capacity reported in 2019 (Figure 8). It was assumed that all of these local installs are net metered and customers can claim the associated renewable electricity benefit.

<sup>6</sup> Solar\*Rewards and Solar\*Rewards Community help Xcel Energy satisfy a regulatory requirement in Colorado to acquire some portion of renewable electricity from distributed generation resources.

<sup>7</sup> Windsource and Renewable\*Connect are ongoing subscription programs and represent the annual electricity used, while On-Site Net Metering, Solar\*Rewards, and Solar\*Rewards Community are solar installations and represent the annual electricity produced.

<sup>8</sup> Net metered production totals were not available.

<sup>9</sup> Calculated production based on total energy produced (kWh) information available in the Garfield County Xcel Energy Community Energy Report for 2021, 2020, and 2019.

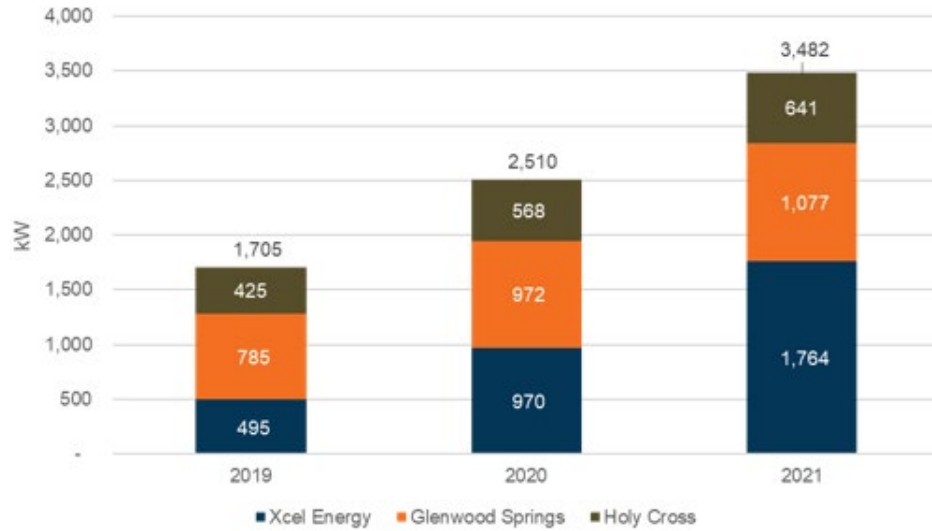


Figure 8. Onsite Residential & Commercial Installed Capacity (kW) by Utility Provider

### Energy Program Participation & Savings

The County’s energy profile also includes energy efficiency program participation and the associated energy savings for residents and businesses. These data provide a total snapshot of the number of programs customers are using and to what extent. The data also show opportunities for greater participation in the available programs as well as the opportunity for increased education and awareness about the programs.

Figure 8 shows total energy efficiency program participation for Xcel Energy, Holy Cross Energy, and City of Glenwood Springs. Program participation totals or associated savings were not received from Black Hills Energy. Energy efficiency program participation has remained relatively flat since 2019 and over 85 percent of participation is from residents, highlighting an opportunity to increase commercial program participation.

While program detail was not available from all service providers, the programs with the highest participation from residents in Xcel Energy’s service territory were refrigerator/freezer recycling, Saver’s Switch, residential HVAC, and single-family home weatherization. The top programs for businesses in Xcel Energy’s service territory were associated with lighting efficiency, business energy analysis, and energy design assistance.

Table 8. Energy Efficiency Program Participation

Utility	2019	2020	2021
Residential	496	421	521
Commercial & Industrial	98	73	66
<b>Total</b>	<b>594</b>	<b>494</b>	<b>587</b>

From 2019 to 2021, an average of 550 customers participated in energy efficiency programs each year, saving an average total of over 2.8 million kWh and nearly 20,000 therms annually. Figure 9 shows total electric efficiency savings for Xcel Energy, Holy Cross Energy, and City of Glenwood Springs programs.

Savings data for City of Glenwood Springs was not received for 2020. In 2021, 3.96 million kWh were saved, a 31 percent increase over 2019. Commercial projects represented 80 percent of the total savings reported in 2021.

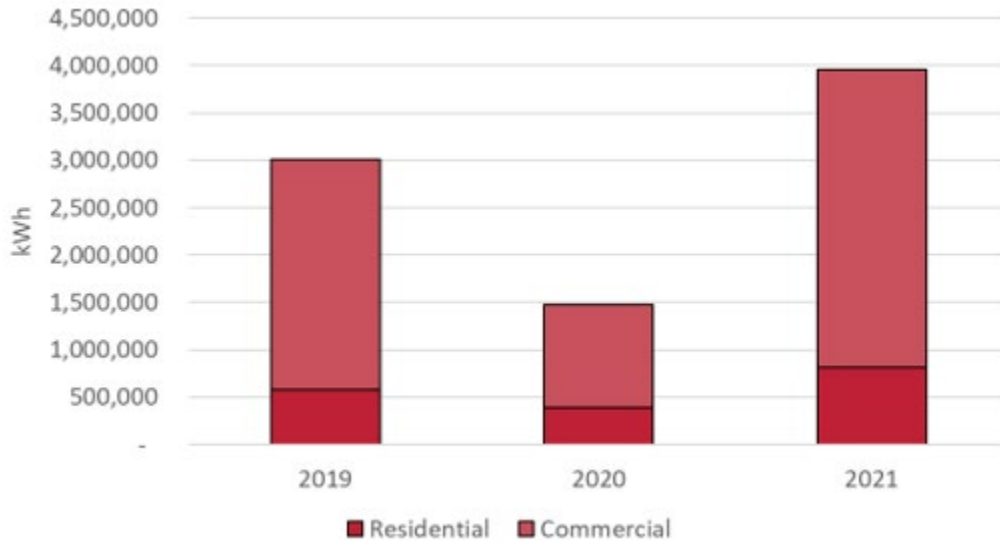


Figure 9. Residential & Commercial Electric Efficiency Savings (kWh)

Figure 10 shows total natural gas efficiency savings for Xcel Energy only. Savings data from Black Hills Energy was not received. In 2021, 34,367 therms were saved, a 116 percent increase over 2019. Commercial projects represented 100 percent of the total savings reported in 2021, with only 81 therms saved in 2021 through residential projects. Historically, residential participation has represented the majority of annually reported natural gas savings.

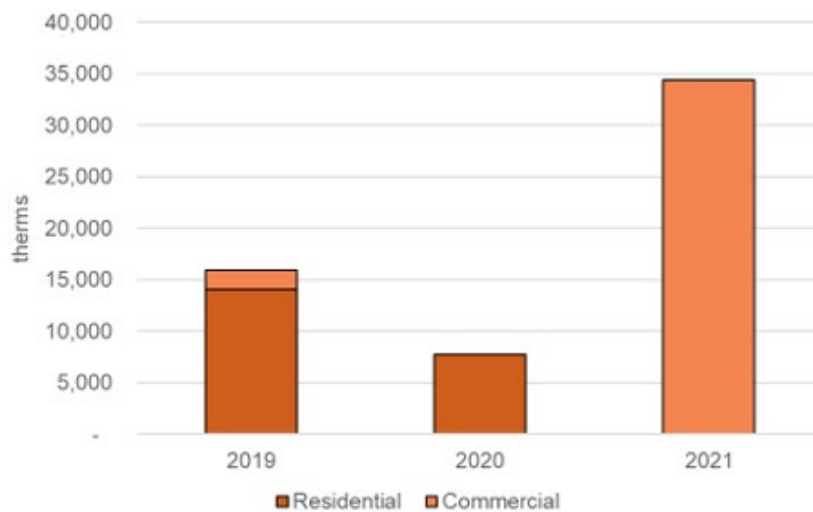


Figure 10. Residential & Commercial Natural Gas Efficiency Savings (therm)

## Mobility

The Colorado Electric Vehicle Plan set a goal of 940,000 electric light-duty vehicles on the road by 2030, compared to a 2020 baseline of 32,763 light-duty EVs. To meet this goal, about 35 percent of new car sales for the State will need to be EVs, compared to 4 percent in 2020.

According to Atlas Public Policy, Garfield County has 602 registered battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV) as of December 2022 (Figure 11). Garfield County is also noted as having 78 level 2 charging ports and 24 DC fast charger ports. The County will pursue a goal of transitioning 15 percent of all registered vehicles to zero-emissions electric by 2030 in support of the State's Electric Vehicle Plan goal.

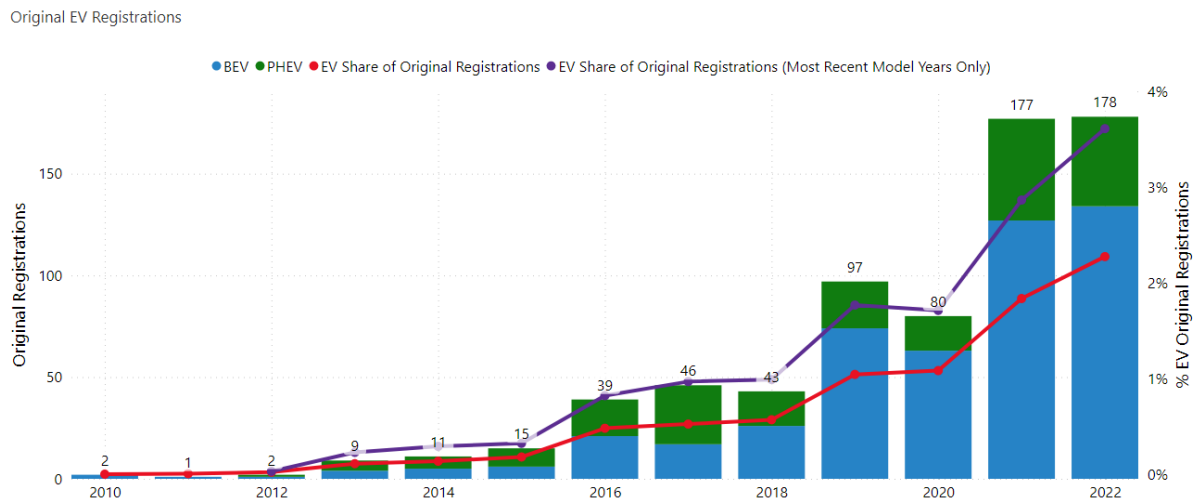


Figure 11. Original EV Registrations (Atlas Public Policy, 2022)



# WHERE WE ARE GOING



## Garfield County’s Energy Vision and Mission

During the planning process, GCE’s board updated the energy vision for Garfield County based on input received from the Energy Action Team. This statement helped guide the planning process and reflects the purpose and history of GCE as well as the intention of the community.

---

### Energy Vision Statement

Garfield Clean Energy Collaborative (GCE) will be an innovative leader in advancing energy efficiency, renewable energy and clean transportation to protect the environment and build a strong, resilient and diverse economy.

---

Other vision concepts brought forward by the Energy Action Team during the planning process included equity, climate protection, and an emphasis on education. The GCE board determined that these themes are central to GCE programs and fundamental to the creation of relevant and realistic common ground solutions in Garfield County.

While Garfield County’s Energy Vision Statement serves as the directional “north star” for energy action within the county, GCE’s updated mission statement begins to describe how this will be brought to life through projects and programs:

---

### Garfield Clean Energy Mission Statement

The mission of Garfield Clean Energy Collaborative is to provide energy efficiency solutions, alternative and renewable energy opportunities, advance clean transportation options, and energy education to individuals and organizations, in order to protect the environment and build a stronger, more resilient economy benefiting the residents of Garfield County.

---

## Plan Goals

Working together, the GCE Board of Directors and the Energy Action Team established goals by which to measure success:



### **Goal 1: Energy Savings in the Built Environment**

Achieve energy efficiency and conservation savings resulting in at least 12 percent total energy savings by 2030 over a 2019 baseline, which will require an average of at least 1.5 percent total annual energy use reduction from 2023 through 2030. As technology and funding improves, work towards increasing total savings.



### **Goal 2: Carbon-Free Electricity**

Garfield County electricity will be 100 percent carbon-free by 2030 through grid-supplied resources and local renewable installations, as a means to a stronger, more resilient, and energy-secure economy and region.



### **Goal 3: Clean Mobility**

The Garfield County region will transition at least 15 percent of all registered vehicles to zero-emissions electric by 2030; support alternative fuels where electric is not yet feasible or where alternative fuels are desirable; and help increase mode share for biking, walking, and transit.



### **Goal 4: Greenhouse Gas Emissions**

The Garfield County region will reduce greenhouse gas (GHG) emissions related to energy supply by 30 percent by 2030. This includes reducing GHG emissions related to electric supply by 100 percent by 2030 and reducing GHG emissions related to natural gas usage as well as related to utilities' commitment to cleaner delivery and supply by 10 percent by 2030.



### **Goal 5: Clean Energy Economic Development and Jobs**

Accelerate and harness the economic benefits of energy efficiency, clean energy, and clean mobility for the benefit of the residents and communities of Garfield County, and find ways to address any economic impacts of transitioning to clean energy.

Figure 12 summarizes how these components relate to each other and lead to how we are going to get there, which is detailed in the next section.

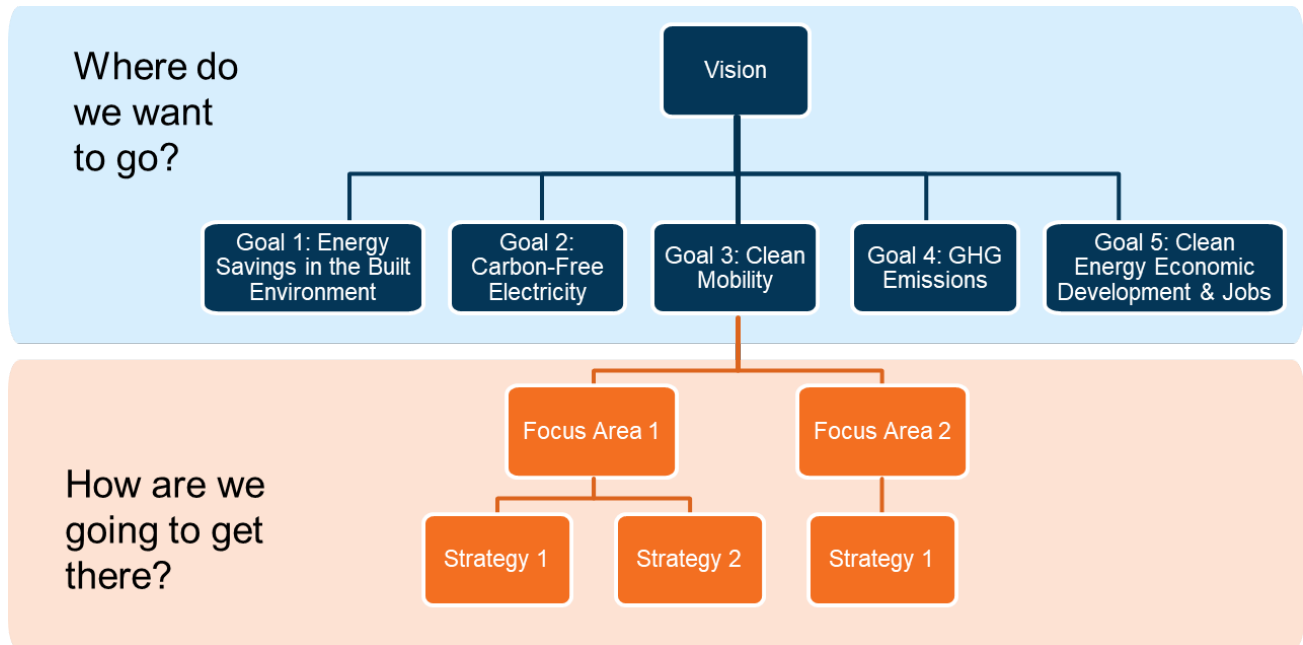


Figure 12: Energy Action Plan Structure

Other vision concepts were brought forward by the Energy Action Team during the planning process. While these concepts were not explicitly integrated into GCE’s updated vision statement, they are recorded here and will continue to inform GCE’s work going forward:

**Equity:** Several members of the Energy Action Team brought up the importance of considering equity, affordability, and support for a just economy. Energy Action Team members noted that geographical and socio-demographic differences across Garfield County could necessitate targeted approaches to ensure equitable implementation of energy projects and programs.

**Education:** Some Energy Action Team members suggested that education initiatives, including community engagement and workforce development, should be part of GCE’s overarching vision. This important part of GCE’s work is instead represented in its mission statement.

**Climate:** The Energy Action Team discussed whether to include concepts of climate change, greenhouse gas emissions, or decarbonization in GCE’s vision statement. In order to ensure that the vision statement continues to resonate with and encourage action by residents across Garfield County, the board decided instead to focus more broadly on the county’s environment and economy.

# HOW WE ARE GOING TO GET THERE



For each goal, the Energy Action Team identified focus areas with a set of strategies designed to help GCE achieve its goals. The following sections are organized by the plan goals and strategies for each focus area. For available and anticipated resources to support implementation, see Appendix A: Available and Anticipated Resources.



## Goal 1: Energy Savings

***Energy Savings Goal:*** Achieve energy efficiency and conservation savings resulting in at least 12 percent total energy savings by 2030 over a 2019 baseline, which will require an average of at least 1.5 percent total annual energy use reduction from 2023 through 2030. As technology and funding improves, work for increased total savings.

Analysis shows that energy use has increased faster than population in the past five years, so achieving a 1.5 percent annual reduction is an ambitious goal. Yet it is doable – and good for the local economy. Energy-efficiency projects assisted by GCE to date are shaving \$2.3 million annually off the county’s collective energy bill. The following strategies designed to help us achieve this goal are organized into three focus areas:

- Focus Area: Residential Sector
- Focus Area: Commercial, Agricultural, and Industrial Sector
- Focus Area: Public Institutions

### Focus Area: Residential Sector

The residential sector is responsible for about 50 percent of built environment energy use, meaning that focusing on helping Garfield County residents save energy and money is a key piece in meeting our energy savings goal. This focus area includes strategies to help residents save energy through energy efficiency behaviors and home improvements.

#### Targets:

- Achieve a total of 3,000 participants in residential energy efficiency programs; increase the number of participants by 25 percent per year by 2030.
- Achieve over 30,000 MMBtu annual reduction in residential energy use through energy efficiency program participation and other conservation efforts.
- Increase access to energy savings for all households, with particular emphasis on low- to moderate-income households – and provide translation services for rebates and programs – to reduce the energy burden on all Garfield County residents.

#### Strategies

- 1.1. Expand, continue, and advance robust, sustained residential energy efficiency programs for homes, with ample funding for rebates, grants, financing, and training to help Garfield County residents maximize energy cost savings and grow economic opportunities.
- 1.2. Provide ongoing support, education, and technical assistance to advance best practice energy-saving design for new construction; update codes and implement advanced energy/green codes where possible.
- 1.3. Advance incentives, programs, and policies that encourage and support property owners to implement energy efficiency improvements before or after purchase.

### Focus Area: Commercial, Agricultural, and Industrial Sector

The commercial sector is responsible for about 50 percent of built environment energy use. Helping businesses and organizations save energy can also help them improve their bottom line and stimulate the local economy. This focus area includes strategies to help commercial entities save energy by connecting them with resources, providing them with technical assistance, and expanding access to incentives for energy saving projects.

#### Targets:

- Achieve a total of 300 participants in commercial energy efficiency programs by 2030; increase the number of participants by approximately 15 percent per year.
- Achieve over 30,000 MMBtu annual reduction in commercial energy use through energy efficiency program participation and other conservation efforts.
- Maximize access to state or federal resources to help the Garfield County region achieve its goals.

#### Strategies

- 1.4. Expand, continue, and advance robust commercial energy efficiency and energy management programs for businesses, with ample funding for rebates, grants, financing, and training to help Garfield County businesses maximize their energy cost savings.

- 1.5 Work with state partners, state and federal resources, and utilities to create and offer incentives, technical assistance, and training to create energy savings and increase energy efficiency for energy intensive industries in the county.
- 1.6 Expand and advance access to utility bill tracking and advanced energy management programs for large buildings.
- 1.7 Provide ongoing support, training, and technical assistance to encourage best practice energy-saving design; secure funding to incentivize upfront energy-saving construction and design.
- 1.8 Work with state partners to expand access to incentives, funding, technical assistance, and training to increase energy savings within agricultural operations.

**Focus Area: Public Institutions**

Maximizing energy savings at local government facilities, schools, and other public institutions demonstrates an efficient use of taxpayer funds and ensures that the public sector is leading by example. This focus area includes strategies to connect public institutions to funding resources and provides technical assistance for energy efficiency improvements.

**Target:**

- Achieve at least 10 percent energy cost savings in GCE partner facilities by 2030 through energy tracking and data-driven advanced energy management.

**Strategies**

- 1.9 Expand and continue countywide access and use of energy tracking and advanced energy management programs for public facilities and schools.
- 1.10 Create and tap innovative funding sources for government entities to cover upfront costs of facility improvements to reach local adopted targets; encourage government entities to incorporate energy savings into decision making, planning, and budgeting. Maximize access to state or federal resources, to help public institutions in Garfield County achieve their goals.
- 1.11 Provide ongoing support, training, and technical assistance to encourage best practice energy-saving design for new construction.



## Goal 2: Carbon-Free Electricity

***Carbon-Free Electricity Goal:*** Garfield County electricity will be 100 percent carbon-free by 2030 through grid-supplied resources and local renewable installations, as a means to a stronger, more resilient, and energy-secure economy and region<sup>10</sup>.

Garfield County has seen dramatic growth in solar over the past decade and is regarded as a solar leader in Colorado. The electric utilities serving Garfield County have each set these carbon-free electricity goals:

- Xcel Energy: 80 percent carbon-free electricity by 2030
- Glenwood Springs: 100 percent carbon-free electricity as of 2019
- Holy Cross Energy: 100 percent carbon-free electricity by 2030

While these utilities are working to make the grid cleaner, increased local renewables and storage will be critical for meeting the goal and realizing local resilience and economic benefits. The following strategies designed to help us achieve this goal are organized into four focus areas:

- Focus Area: On-Site Solar
- Focus Area: Community-Scale Solar
- Focus Area: Carbon-Free Grid
- Focus Area: Other Locally-Based Renewable Energy Sources

---

<sup>10</sup> This goal acknowledges questions about “100% carbon-free” terminology raised during the planning process. Due to utilities using the term in their planning processes and sustainability goals, the plan is using this terminology while also working understand whether there are more accurate terms to describe this goal. See [Xcel Energy’s Carbon Reduction Plan](#) which envisions a future powered by renewable and zero-carbon 24/7 energy technologies.

### Focus Area: On-Site Solar

Property owners who install solar at their sites can offset their electricity bill based on the amount of energy they produce, as well as help to meet local generation goals. This focus area includes strategies to connect all Garfield County community members to resources that will help them install and benefit from on-site solar installations.

#### Targets:

- Increase local residential on-site solar installs by 30% annually.
- Increase local commercial on-site solar installs by 5 businesses each year.

#### Strategies

- 2.1 Expand/continue Solarize Garfield County, including support for an energy storage component, with ample funding and special consideration for equitable access to the program.
- 2.2 Provide support and funding sources for all public entities to maximize on-site renewable energy for greater resilience and cost savings.
- 2.3 Work with all businesses in the region that are part of national corporations with net-zero and sustainability goals, to encourage local implementation of on-site renewable energy.
- 2.4 Work on the electricity grid, wholesale suppliers, and infrastructure issues, to address barriers to expanded renewable energy.
- 2.5 Incorporate solar into new construction and codes where there is interest and support.

### Focus Area: Community-Scale Solar

Community-scale solar are typically larger installations than on-site solar and provide energy to multiple users (e.g., individuals, businesses, organizations). Community solar allows those who may not be able to install solar on-site to participate in local energy generation activities. Strategies in this focus area include efforts to develop more community-scale solar projects across Garfield County.

#### Target:

- Pursue development of 180 MW of market potential in Holy Cross Energy’s service territory and 52 MW of market potential in Xcel Energy’s service territory, for a total regional impact of 232 MW.

#### Strategies

- 2.6 Support efforts to install more community-scale renewable generation and storage, using the 3-County Solar+Storage plan as a guide.
- 2.7 Work on electricity grid and infrastructure issues to address barriers to expanded renewable energy.
- 2.8 Create and utilize innovative financing sources to maximize the local value of solar.
- 2.9 Promote participation in community solar gardens and make community solar gardens more accessible.



### Focus Area: Carbon-Free Grid

All of Garfield County’s electric providers are moving toward a carbon-free electric grid through renewable energy supplies. This focus area includes strategies to promote participation in existing renewable programs, to continue showing the demand for carbon-free electricity and to ensure that all residents, no matter their income level, can participate in renewable energy programs.

#### Target:

- Increase annual participation in participant-owned REC based renewable programs (e.g., Windsource, Renewable \*Connect) to meet 100% carbon-free goal.

#### Strategies

- 2.10 Promote enrollment to utility-based renewable programs that increase access to carbon-free energy offered by the utilities.
- 2.11 Work with the utilities to eliminate financial barriers for low-income and underserved communities in accessing carbon-free energy programs. Increase translation services for these opportunities, thus reducing the barrier of language to participation.

### Focus Area: Other Locally-Based Renewable Energy Sources

While solar and wind are the most prominent renewable energy sources, other sources can provide Garfield County with new economic and resiliency opportunities. This focus area includes strategies to explore and leverage these technologies.

#### Targets:

- None identified.

#### Strategies

- 2.12 Continue to increase regional awareness, exploration, development, and implementation of other renewable energy sources including micro-hydro and geothermal.
- 2.13 Tap state and federal resources to accelerate use of geothermal energy and increase use of renewable energy for heating and cooling.



### Goal 3: Clean Mobility



*Clean Mobility Goal:* Transition at least 15 percent of all registered vehicles to zero-emissions electric by 2030 support alternative fuels where electric is not yet feasible or where alternative fuels are desirable; and help increase mode share for biking, walking, and transit.

Transitioning away from single occupancy internal combustion engine vehicles and toward cleaner forms of transportation will have multiple benefits for Garfield County, including improved air quality, reduced greenhouse gas emissions, and enhanced community vibrance and resilience. This goal takes a two-pronged approach to clean mobility, focusing both on electric and alternative fuel vehicles and on increasing active transportation such as biking, walking, and transit.

The following strategies designed to help us achieve this goal are organized into two focus areas:

- Focus Area: Transportation Electrification
- Focus Area: Increase Biking, Walking, Transit Mode Share

#### Focus Area: Transportation Electrification

Strategies in this focus area are aimed at increasing the adoption of electric vehicles throughout Garfield County, and to ensuring that there is a robust network of charging infrastructure to support those vehicles. These strategies support the State's goal of increasing the number of light-duty EVs in Colorado to 940,000 by 2030. In addition, these strategies support Xcel Energy's Clean Transportation Vision to enable one out of every five vehicles in the areas it serves to be electric by 2030, and for all vehicles to run on carbon-free electricity or other clean energy by 2050.

Garfield County has seen a steep increase in the number of electric vehicles over recent years, mirroring patterns at the state and national scale. According to Atlas Public Policy, Garfield County has an estimated 600 registered EVs as of December 2022, up from less than 100 just 5 years ago. Despite this rapid

increase, electric vehicles account for only 1% percent of all vehicles in Garfield County. Achieving our goal will therefore require significant action over the coming years.

**Target:**

- 15% of vehicles in Garfield County are zero emissions electric by 2030.

**Strategies**

- 3.1. Provide access to incentives, funding, and information that will make it easier for people to purchase Electric Vehicles (EVs), which include Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs). Remove barriers to these purchases and ensure equitable access to electric vehicles.
- 3.2. Provide technical assistance, as well as access to incentives, information, and support, to encourage conversion of fleets to electric or plug-in hybrids.
  - Provide coaching and technical assistance to educate school districts on the details of, and how to apply for, available funding from federal and state sources to transition school bus fleets to electric school buses.
  - Provide coaching and technical assistance to all fleet owners, to encourage use of available incentives.
- 3.3. Continue to improve access to, improve, and maintain electric vehicle charging infrastructure.
  - Create a more detailed plan for expanding electric vehicle charging infrastructure in the region, to be prepared for state and federal funding. Address charging infrastructure gaps, such as in multifamily residences, to ensure that all residents have access to EV charging at home.
  - Provide targeted coaching and technical assistance to multifamily housing property managers and owners.
  - Connect residents, businesses, and municipalities to available incentives and programs for charging infrastructure.
- 3.4. Support efforts to electrify the public transit fleet.
- 3.5. Provide assistance to local governments, related to the adoption of codes and policies that support EV adoption and multimodal transportation.

**Focus Area: Increase Biking, Walking, Transit Mode Share**

Garfield County has high rates of active transportation and carpooling, with 32 percent of people choosing to travel to work by means other than driving alone, compared to 27 percent statewide. This focus area includes strategies to further increase biking, walking, and transit, in order to reduce greenhouse gas emissions and support community resilience.

**Targets:**

- None identified.

**Strategies**

- 3.6. Support local policies and conduct programs that encourage biking, walking, and transit, such as regional Bike to Work promotions and school biking/walking programs.

- 3.7. Support community bike programs and increase access to bikes for all populations.
- 3.8. Increase access to electric bike rebates where biking can be used to replace vehicle trips.
- 3.9. Support opportunities to improve first- and last-mile connectivity.
  - Support and promote Community Based Transit and App-based on-demand ride share.
- 3.10. Support local policies and programs that encourage alternative transportation.
  - Provide local governments with assistance related to the adoption of codes and policies that support EV adoption and multimodal transportation.
  - Support access to smart design to make it easier to bike or walk.



## Goal 4: Greenhouse Gas Emissions

*Greenhouse Gas Emissions Goal:* The Garfield County region will reduce greenhouse gas emissions related to energy supply by 30 percent by 2030.

- Reduce greenhouse gas emissions related to the electric supply by 100 percent by 2030.
- Reduce greenhouse gas emission related to natural gas usage as well as related to utilities' commitment to cleaner delivery and supply by 10 percent by 2030.

Many of the focus areas and strategies included in this plan contribute to reduced greenhouse gas emissions. This new goal for GCE was recommended for inclusion in this plan by the Energy Action Team. The goal is intended to capture the cumulative impact of actions to reduce energy-related emissions and focuses on building electrification strategies not covered in other goal areas.

The following strategies designed to help us achieve this goal are organized under one focus area:

- Focus Area: Building Electrification

### Focus Area: Building Electrification

This focus area includes strategies aimed at transitioning energy use in buildings away from fossil fuels and towards clean electricity. As grid-supplied electricity becomes cleaner, electrifying building energy use will reduce energy-related greenhouse gas emissions.

#### Targets:

- None identified

#### Strategies

- 4.1. Create, fund, and promote a countywide building electrification program.
- 4.2. Provide technical support for community institutions and developers to implement new construction efficiency and building electrification technologies.

- Provide new construction design assistance to support the integration of efficiency measures, electrification considerations, and renewable generation from the start.
  - Promote and increase participation in new construction efficiency and electrification incentives (e.g., engagement with Rifle Eco-Dwellings development).
  - Work with community institutions to lead by example.
- 4.3. Provide support to local government staff and elected officials around energy code updates related to beneficial electrification.
- 4.4. Support the implementation and enforcement of electrification codes and related energy codes (e.g., energy efficiency, renewable-energy ready, EV-ready).
- 4.5. Align local building codes with 2022 State legislation.
- 4.6. Provide education and outreach to residents and businesses around beneficial electrification opportunities.



## Goal 5: Clean Energy Economic Development and Jobs

*Clean Energy Economic Development and Jobs Goal: Accelerate and harness the economic benefits of energy efficiency, clean energy, and clean mobility for the benefit of the residents and communities of Garfield County and find ways to address any economic impacts of transitioning to clean energy.*

Since 2009 GCE has offered programs that create measurable economic benefits. These benefits can be increased by ramping up programs to reach more households and businesses, focusing on local job creation and workforce training, and working with state partners to address any negative impacts resulting from energy transitions.

The following strategies designed to help us achieve this goal are organized under three focus areas:

- Focus Area: Mobilizing Funding, Incentives, and Investment
- Focus Area: Education, Training, and Capacity Building
- Focus Area: Policy and Innovation

### Focus Area: Mobilizing Funding, Incentives, and Investment

Many federal, state, and private entities recognize the importance of the clean energy industry and are providing funding resources to accelerate its development. This focus area includes strategies to leverage these resources to support sustained, resilient investment in energy action.

#### Targets:

- None identified

#### Strategies

- 5.1 Develop and offer multiple funding and financing options to overcome upfront cost barriers associated with other strategies listed in this plan and to ensure equitable access to new technologies, clean energy, and energy savings. Work to tap state, federal, or other resources to catalyze innovation and implement the vision, mission, and goals of this plan.

- 5.2 Identify and secure sustained funding sources for strategies to avoid “boom-bust” approaches to program implementation and achieve sustained benefits for growing the clean energy economy.

### Focus Area: Education, Training, and Capacity Building

This focus area includes strategies to ensure that Garfield County’s institutions and workforce is prepared to take advantage of opportunities and implement the strategies identified in this plan.

#### Targets:

- None identified

#### Strategies

- 5.3 Develop and promote workforce development programs that support the strategies listed in this plan to increase localized employment opportunities and business development. Identify gap areas and work with the State and other partners to create training and incentives to fill gaps.
- 5.4 Work with educational institutions to provide energy education opportunities and training for multiple age groups. Work with educational institutions to create paid internships.
- 5.5 Provide ongoing outreach and training to build countywide knowledge, capacity, energy literacy, leadership, and technical expertise to support maximum local and regional economic benefits associated with achieving goals.

### Focus Area: Policy and Innovation

This focus area includes opportunities to pursue policy and partnerships that support ongoing energy action in a way that creates local benefits within Garfield County.

#### Targets:

- None identified

#### Strategies

- 5.6 Pursue policies and funding that address the fiscal impacts of transitioning to a clean energy economy and assist the region with maintaining a strong economy and resources for public services in the face of changing national energy conditions.
- 5.7 Pursue partnerships and innovation to create maximum opportunities from the implementation of strategies and harness benefits locally.



# IMPLEMENTATION



This Energy Action Plan update is a living document. Goals and strategies will be assessed and refined based on new data, technologies, or other opportunities.

## Project Management

The implementation of this plan will be led by CLEER (GCE’s program deliverer) with continued support from Xcel Energy’s Partners in Energy. CLEER will coordinate with the Energy Action Team that helped develop this plan to also assist in implementation.

## Data Reporting and Tracking

To ensure that GCE is making progress, goals and targets will be evaluated on an annual basis at minimum.

Partners in Energy will provide biannual progress reports with metrics of success and overall progress towards goals related to Xcel Energy rebates and programs. These reports will be available publicly and shared with the community. Other utility provider data will not be included in the biannual progress reports. Partners in Energy will work with GCE during implementation to support tool development that incorporates data from other utility service providers to track progress toward plan goals. If available, ad-hoc participation reports for specific Xcel Energy programs (e.g., Home Energy Squad®) can be provided to measure success of campaigns and to determine if we need to change course.

The goals and targets identified through this planning process are summarized in Table 9.

Table 9: Goals Tracking Summary

Goal	2030 Goal	2019 Baseline
<p><b>Energy Usage (MMBtu):</b> Achieve energy efficiency and conservation savings resulting in at least 12 percent total energy savings by 2030 over a 2019 baseline, which will require an average of at least 1.5 percent total annual energy use reduction from 2023 through 2030. As technology and funding improves, work for increased total savings.</p> <p><u>Data Source:</u> Energy consumption data provided by utilities</p>	3,936,746	4,253,022
<p><b>Carbon-Free Electricity (%):</b> Garfield County electricity will be 100 percent carbon-free by 2030 through grid-supplied resources and local renewable installations, as a means to a stronger, more resilient, and energy-secure economy and region.</p> <p><u>Data Source:</u> Calculated based on carbon-free supply percentage provided by utilities and participant-owned local renewables</p>	100%	46%
<p><b>Zero-Emissions Transportation (%):</b> Transition at least 15 percent of all registered vehicles to zero-emissions electric by 2030; support alternative fuels where electric is not yet feasible or where alternative fuels are desirable; and help increase mode share for biking, walking, and transit.</p> <p><u>Data Source:</u> Total vehicle registration data from DMV and EV counts from Atlas Public Policy</p>	15%	1% (2022 Baseline)
<p><b>GHG Emissions (MTCO<sub>2e</sub>):</b></p> <ul style="list-style-type: none"> <li>Reduce greenhouse gas emissions related to the electric supply by 100 percent by 2030</li> <li>Reduce greenhouse gas emission related to natural gas usage as well as related to utilities' commitment to cleaner delivery and supply by 10 percent by 2030.</li> </ul> <p><u>Data Source:</u> Estimated based on utility-provided consumption data and utility-specific emissions factors</p>	0 (E) 126,467 (G)	173,781 (E) 140,519 (G)

# APPENDIX A: AVAILABLE AND ANTICIPATED RESOURCES

## Available Resources to Support Implementation

Resource	Related Goal Area				
	Energy Savings Goal	Carbon-Free Electricity	Clean Mobility	GHG Emissions	Clean Energy Econ. Dev. & Jobs
3-County Solar+Storage Plan		X			
Advanced Energy Management program (managed by CLEER)	X				
Advancing Colorado’s Renewable Energy and Energy Efficiency (ACRE3) (managed by the Colorado Department of Agriculture)	X				
BEST Grant Program for Schools (managed by Colorado Department of Education)	X	X			
Building Performance Colorado (managed by the Colorado Energy Office)	X				
Can Do Colorado eBike Program (managed by the Colorado Energy Office)			X		
C-PACE financing for commercial entities	X	X			
Charge Ahead Grants (managed by the Colorado Energy Office) for Level 2 and DCFC EV charging stations			X		
Clean Air Program (CAP) Grants (managed by Colorado Energy Office)		X			
Colorado’s Affordable Residential Energy (CARE) program (managed by CLEER)	X				
Colorado Energy Office Energy Code Trainings	X	X		X	
Colorado Low-Income Energy Assistance Program (LEAP) (managed by the Colorado Department of Human Services)	X				
Colorado RENU Loan for residential and commercial projects (managed by Colorado Clean Energy Fund)		X			

DC Fast Charging Plaza and Corridor Programs (managed by the Colorado Energy Office)			X		
Energy performance contracting (managed by Colorado Energy Office)	X	X			
Geothermal Energy Grant Program (managed by Colorado Energy Office)		X			
Federal Business Energy Investment Tax Credit		X			
Federal Renewable Electricity Production Tax Credit		X			
ReEnergize Garfield County (managed by CLEER)	X				
ReNew Our Schools (managed by Colorado Energy Office)	X				
Solarize Garfield County (managed by CLEER)		X			
Utility energy efficiency, solar, electrification, and electric vehicle programs	X	X	X	X	
Weatherization Assistance Program (WAP) (managed by NWCCOG)	X				
Xcel Energy Colorado Energy Codes & Standards Program	X	X		X	

## Anticipated Resources to Support Implementation

Resource	Related Goal Area				
	Energy Savings Goal	Carbon-Free Electricity	Clean Mobility	GHG Emissions	Clean Energy Econ. Dev. & Jobs
<b>Inflation Reduction Act</b>					
Alternative Fuel Infrastructure Tax Credit (available from 1/1/2023 for up to 30 percent of charger cost, not to exceed \$100,000)			X		
Assistance for Latest and Zero Building Energy Code Adoption	X	X		X	
Energy Efficient Commercial Buildings Deduction	X				
Energy Efficient Home Improvement Credit (25C)	X				
Environmental and Climate Justice Block Grants	X	X	X	X	X
High-Efficiency Electric Home Rebate Program (HEERA)	X			X	
Grants for charging and fueling infrastructure			X		
Home Energy Performance Based, Whole-House Rebate (HOMES) Program	X				
Improving Energy Efficiency, Water Efficiency, or Resilience of Affordable Housing	X				
Low Emissions Electricity Outreach Program	X	X		X	
<b>Clean Fleet Enterprise (managed by Colorado Department of Transportation)</b>					
Clean Fleet Vehicle Workforce Development Portfolio to include a range of programs such as driver/operator training and technician training			X		X
<b>Community Access Enterprise Funding (managed by the Colorado Energy Office)</b>					
Community-Accelerated Mobility Project (CAMP) funding for mobility solutions such as electric carshare, vanpool, eBike share, community charging infrastructure			X		
Fleet Infrastructure Resources (FIR) support to fleet owners seeking to install EV charging to serve medium- and heavy-duty fleet operations			X		

Vehicle Investment for Sustainable Transportation Access (VISTA) funding to replace high-emitting vehicles with low-emissions options such as battery EVs, transit, electric alternative mobility, and others			X		
---	--	--	---	--	--

# APPENDIX B: STRATEGY METRICS & PARTNERS

Metrics are one important tool for creating steps to achieve and measure progress. The following list is a work in progress as GCE continues to refine meaningful and practical ways to measure progress.

## Key Metrics

### Goal 1: Energy Savings

- Focus Area: Residential Sector
  - Strategy 1.1
    - Utility energy efficiency program participation
    - CARE program participation
    - WAP program participation
    - ReEnergize Garfield County program participation
    - LEAP program participation
  - Strategy 1.2
    - Percent of Garfield County covered by the latest residential building energy codes
  - Strategy 1.3
    - To be determined as part of new program/policy
- Focus Area: Commercial, Agricultural, and Industrial Sector
  - Strategy 1.4
    - Utility energy efficiency program participation
    - Percentage of buildings reporting through Building Performance Colorado that are in compliance
  - Strategy 1.5
    - Number of entities in energy intensive industries that are receiving support from GCE
  - Strategy 1.6
    - Number of entities receiving utility bill tracking and advanced energy management program support from GCE
  - Strategy 1.7
    - Utility new construction program participation
    - Number of entities receiving construction and design support from GCE
  - Strategy 1.8
    - Number of agricultural entities receiving support from GCE
    - ACRE3 program participation
- Focus Area: Public Institutions
  - Strategy 1.9
    - Number of entities participating in advanced energy management programs
  - Strategy 1.10
    - Number of entities receiving support from GCE
    - Number of projects supported
  - Strategy 1.11
    - Utility new construction program participation

- Number of entities receiving construction and design support from GCE

## Goal 2: Carbon-Free Electricity

- Focus Area: On-Site Solar
  - Strategy 2.1
    - Number of participants in Solarize Garfield County by household income level and associated solar capacity installed
  - Strategy 2.2
    - Number of entities receiving support from GCE and associated solar capacity installed
  - Strategy 2.3
    - Number of businesses receiving support from GCE and associated solar capacity installed
  - Strategy 2.4
    - To be determined as part of plan implementation
  - Strategy 2.5
    - To be determined as part of plan implementation
- Focus Area: Community-Scale Solar
  - Strategy 2.6
    - Number and capacity of community solar projects
  - Strategy 2.7
    - To be determined as part of plan implementation
  - Strategy 2.8
    - To be determined as part of plan implementation
  - Strategy 2.9
    - Number of participants in community solar programs
- Focus Area: Carbon-Free Grid
  - Strategy 2.10
    - Number of participants in utility renewable programs
  - Strategy 2.11
    - Number of participants in income-qualified community solar programs
- Focus Area: Other Locally-Based Renewable Energy Sources
  - Strategy 2.12
    - To be determined as part of plan implementation
  - Strategy 2.13
    - Number of geothermal projects or programs supported by GCE

## Goal 3: Clean Mobility

- Focus Area: Transportation Electrification
  - Strategy 3.1
    - Uptake of incentives for electric vehicle purchase
  - Strategy 3.2
    - Number of fleet operators engaged



- Electric fleet vehicles purchased
- Strategy 3.3
  - Number of Level 2 and DC fast charging stations
  - Creation of detailed charging infrastructure plan
  - Number of multifamily property owners, residents, businesses, and/or municipalities engaged
- Strategy 3.4
  - Number of electric buses in public transit fleet
  - Number of fleet managers engaged
- Strategy 3.5
  - Number of local governments engaged
  - Adoption of codes and policies that support EV adoption and multimodal transportation
- Focus Area: Increase Biking, Walking, Transit Mode Share
  - Strategy 3.6
    - Number and size of engagement activities undertaken
    - Number of schools engaged
    - Number of policies adopted
  - Strategy 3.7
    - Number of community bike programs
    - Percentage of people commuting by bike
  - Strategy 3.8
    - Uptake of electric bike rebates
  - Strategy 3.9
    - Number of promotion activities
    - Community transit and rideshare use
  - Strategy 3.10
    - Number of local governments engaged
    - Adoption of local policies and programs to encourage alternative transportation

#### Goal 4: Greenhouse Gas Emissions

- Focus Area: Building Electrification
  - Strategy 4.1
    - Creation of an electrification program
    - Funding allocated to electrification program
  - Strategy 4.2
    - Number of institutions and developers engaged
    - Participation in new construction incentive programs
  - Strategy 4.3
    - Number of local governments engaged
  - Strategy 4.4
    - Adoption of beneficial electrification codes
  - Strategy 4.5

- Adoption of updated building codes
- Strategy 4.6
  - Number of residents and businesses engaged

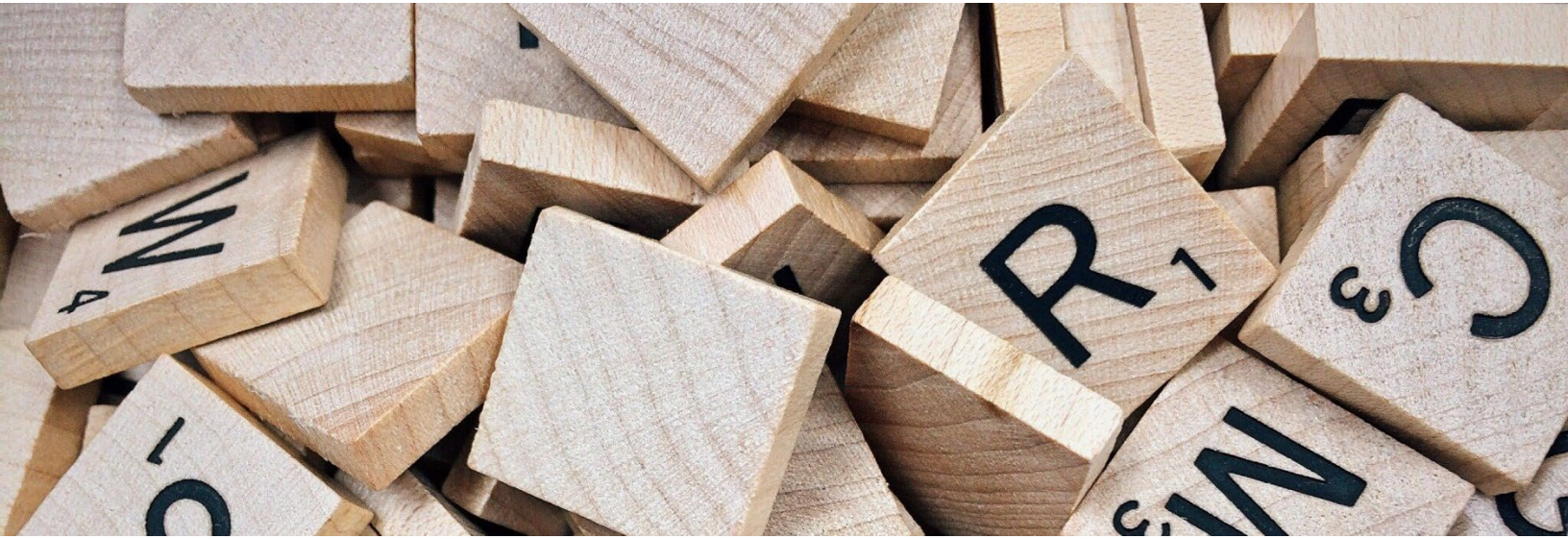
### Goal 5: Clean Energy Economic Development and Jobs

- Focus Area: Mobilizing Funding, Incentives, and Investment
  - Strategy 5.1
    - To be determined as part of plan implementation
  - Strategy 5.2
    - Number and size of funding sources for GCE
- Focus Area: Education, Training, and Capacity Building
  - Strategy 5.3
    - Number of workforce development programs created
    - Participation in workforce development programs
  - Strategy 5.4
    - Number of educational institutions engaged
    - Number of paid internships created
  - Strategy 5.5
    - Number of outreach and training programs launched
- Focus Area: Policy and Innovation
  - Strategy 5.6
    - To be determined as part of plan implementation
  - Strategy 5.7
    - Number of partnerships supporting GCE

## Partners by Goal

Partner	Related Goal Area				
	Energy Savings Goal	Carbon-Free Electricity	Clean Mobility	GHG Emissions	Clean Energy Econ. Dev. & Jobs
Auto dealerships			X		
Bike share providers			X		
Bicycle advocacy groups			X		
Charging installers			X		
Colorado Clean Energy Fund		X			
Colorado Department of Agriculture	X				
Colorado Energy Office	X	X	X		X
Colorado Mountain College					X
Colorado Public Utilities Commission		X			
Electric and natural gas utilities	X	X	X	X	X
GRID Alternatives		X			
Local developers and contractors	X	X		X	
Local businesses, including fleet managers	X		X		
Local governments	X	X	X	X	
Multifamily property managers			X		
Northwest Colorado Council of Governments	X				
Ride share providers			X		
Real estate industry representatives	X				
Roaring Fork Transportation Authority			X		
School districts	X		X		
SWEEP			X		

## APPENDIX C: GLOSSARY OF TERMS



**15 x 15:** Xcel Energy’s privacy rule, which requires all data summary statistics to contain at least 15 premises, with no single premise responsible for more than 15 percent of the total. Following these rules, if a premise(s) is responsible for more than 15 percent of the total for that data set, it is/they are removed from the summary.

**British Thermal Unit (BTU):** the amount of heat needed to raise one pound of water at maximum density through one degree Fahrenheit

**Carbon-free:** Carbon-free refers to sources of energy that will not emit additional carbon dioxide into the air. Wind, solar and nuclear energy are all carbon free sources but only wind and solar are renewable.

**Carbon-neutral:** Carbon-neutral, also described as “net zero”, could include carbon-free sources but is broader and refers to energy that removes or avoids as much carbon dioxide as is released over a set period of time. Carbon-neutral is sometimes used to describe a site that produces an excess amount of electricity from a renewable energy source, such as solar, compared to what it consumes. That excess energy is put back into the grid in an amount that offsets the carbon dioxide produced from the electricity it draws from the grid when it is not producing renewable energy.

**Community Data Mapping:** A baseline analysis of energy data in a geospatial (map) format across the community.

**Degree Days:** Degree days are a measure of how warm or cold a location is. A degree day compares the mean outdoor temperature to a standard temperature, usually 65°F. The more extreme the outdoor temperatures, the higher number of heating or cooling degree days, and the higher the energy used for space heating or cooling.

**Demand Side Management (DSM):** Modification of consumer demand for energy through various methods, including education and financial incentives. DSM aims to encourage consumers to decrease energy

consumption, especially during peak hours, or to shift time-of-energy use to off-peak periods such as nighttime and weekend.

**Direct Installation:** Free energy-saving equipment installed by Xcel Energy or other organization, for program participants, that produces immediate energy savings.

**Energy Burden:** Percentage of gross household income spent on energy costs.

**Energy Reduction:** The result of behavior changes that cause less energy to be used. For example, setting the thermostat to a lower temperature *reduces* the energy used in your home during the winter. Since energy reductions can be easily reversed, they are not accounted for when calculating changes in energy usage.

**Energy Savings:** Comes from a permanent change that results in using less energy to achieve the same results. A new furnace uses X percent less energy to keep your home at the same temperature (all things being equal), resulting in energy savings of X percent. For accounting purposes, energy savings are only counted in the year the new equipment is installed.

**Greenhouse Gases (GHG):** Gases in the atmosphere that absorb and emit radiation and significantly contribute to climate change. The primary greenhouse gases in the earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

**Grid Decarbonization:** The current planned reduction in the carbon intensity of electricity provided by electric utilities through the addition of low- or no-carbon energy sources to the electricity grid.

**Kilowatt-hour (kWh):** A unit of electricity consumption.

**Million British Thermal Units (MMBtu):** A unit of energy consumption that allows electricity and natural gas consumption to be combined.

**Metric Tons of Carbon Dioxide Equivalent (MTCO<sub>2e</sub>):** A unit of measure for greenhouse gas emissions. The unit "CO<sub>2e</sub>" represents an amount of a greenhouse gas whose atmospheric impact has been standardized to that of one unit mass of carbon dioxide (CO<sub>2</sub>), based on the global warming potential (GWP) of the gas.

**Megawatt (MW):** A unit of electric power equal to 1 million watts.

**Premise:** A unique combination of service address and meter. For residential customers, this is the equivalent of an individual house or dwelling unit in a multi-tenant building. For business customers, it is an individual business, or for a larger business, a separately-metered portion of the business's load at that address.

**Renewable Energy Certificate (REC):** For every megawatt-hour of clean, renewable electricity generation, a renewable energy certificate (REC) is created. A REC embodies all the environmental attributes of the generation and can be tracked and traded separately from the underlying electricity. Also known as a Renewable Energy Credit.

**Resilience:** The ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents.

**Recommissioning:** An energy efficiency service focused on identifying ways that existing building systems can be tuned up to run as efficiently as possible.

**Solar Garden:** Shared solar array with grid-connected subscribers who receive bill credits for their subscriptions.

**Solar Photovoltaic (PV):** Solar cells/panels that convert sunlight into electricity (convert light, or photons, into electricity, or voltage).

**Subscription:** An agreement to purchase a certain amount of something in regular intervals.

**Therm (thm):** A unit of natural gas consumption.