

**TOWN OF MOUNTAIN VILLAGE  
GREEN TEAM COMMITTEE MEETING  
TUESDAY, DECEMBER 8, 2020, 2:00 PM**

**DRAFT AGENDA**

**TO BE HELD REMOTELY VIA GOOGLE MEET:  
Meeting ID**

[meet.google.com/pzh-yejx-ezh](https://meet.google.com/pzh-yejx-ezh)

	<b>TOD</b>	<b>Time Requested</b>	<b>Presenter</b>	<b>Type</b>	<b>Title</b>
1	2:00:00		Jett		Call to order
2	2:00:00	::5	Jett	Public Comment	Public Comment on Non-Agenda Items
3	2:05:00	::5	Jett	Action	Approval of the November 10, 2020 Meeting Minutes
4	2:10:00	::15	Greenspan	Work Session	Discussion to consider adding compost, recycle and green purchasing mandates for all Town facilities
5	2:25:00	::30	Jett	Action	Finalize 2021 Work Plan including sign up for Green Tips
6	2:55:00	::5	Jett	Action	Finalize 4th Quarter Report to Town Council to be presented at the regular January Meeting
7	3:00:00	::5	Jett	Action	Appointment of Town Clean Up Chair
8	3:05:00	::15	Jett/Berry	Action	Direction from Town Council to finalize a contractor for Regional Green House Gas Emissions Analysis
10	3:20:00		Jett	Informational	Items for Consideration: A. Snowmelt options for Chondola walkways B. San Miguel Watershed Coalition Update C. Beaver Issue D. Finn Kjome to speak about Mountain Village water E. Adopt a Highway F. 2020 January – March: 1st Quarter Green Team Quarterly Report. Present in <b>APRIL</b> G. 2020 April – June: 2nd Quarter Green Team Quarterly Report. Present in <b>JULY</b> H. 2020 July – Sept: 3rd Quarter Green Team Quarterly Report. Present in <b>OCT</b> I. 2020 Oct – Dec: 4th Quarter Green Team Quarterly Report. Present in <b>JAN</b> J. Ordinance and Initiative Timeline K. Forest health - infestation? Blowdown Management? <b>L. Review Bruin Contract - 6 month review due Feb 2021. Need reports by JAN meeting</b> M. Weed Management
11	3:20:00	::5	Jett	Informational	Other Business
12	3:25:00	::5	Jett		Adjourn

**Log in information:**

<https://meet.google.com/pzh-yejx-ezh>

**Join by phone**

**(US) +1 732-366-1986 PIN: 206 598 798#**

**TOWN OF MOUNTAIN VILLAGE  
MINUTES OF THE NOVEMBER 10, 2020  
GREEN TEAM MEETING **DRAFT****

The meeting of the Green Team Committee was called to order by Cath Jett on Tuesday, November 10, 2020 at 2:03 p.m. via Google Meet.

**Zoom Attendance:**

**The following Green Team Committee members were present:**

Cath Jett, Chair and Mountain Village Resident  
Jonathan Greenspan, Vice Chair and Mountain Village Resident  
Patrick Berry, Mountain Village Town Council  
Marti Prohaska, Mountain Village Town Council  
Erin Kress, Telluride Ski and Golf Company  
Marla Meridith, Telluride Mountain Village Owner's Association

**The following were absent:**

Inga Johansson, Alternate Seat  
Mike Follen, At Large Seat

**The following were also in attendance:**

Zoe Dohnal, Business Development & Sustainability Director (Staff)  
Christina Lambert, Senior Deputy Town Clerk (Staff)  
Julia Ferguson, Lotus Engineering  
Jonette Bronson, Resident

**Public Comment on Non-Agenda Items:**

No public comment was received.

**Consideration of Approval of Minutes:**

Agenda Item 3- October 13, 2020 Green Team Committee Meeting Minutes

On a **MOTION** by Patrick Berry and seconded by Marti Prohaska, the Green Team Committee voted unanimously to approve the October 13, 2020 meeting minutes as presented.

**Discussion and Committee Follow Up/Next Steps:**

- Agenda Item 4- Recommendation to Town Council of Appointment of an At-Large Member:
  - **NEXT STEPS:** Cath Jett and Christina Lambert presented this item to the committee and discussion took place.
  - There were three applicants at the time of the Green Team Committee meeting.

- o Jonette Bronson
- o Danielle Lewis
- o Randy Root

- The official application deadline is Wednesday, November 11, 2020 at 5 p.m.
- The deadline was set by the Town of Mountain Village Town Clerk.
- The Town of Mountain Village Communications Department advertised for the open seat via Telluride Daily Planet, Social Media and Eblast.
- The Green Team Committee will make a recommendation during the meeting but will consider any applicants that apply after the meeting if they are within the deadline.
- On a **MOTION** by Marti Prohaska and seconded by Patrick Berry, the Green Team Committee voted unanimously to recommend Jonette Bronson for the open At-Large Member seat.
- This recommendation will be in the staff memo that will be included in the November 19, 2020 Town Council meeting packet.
- The committee discussed that the timing of the deadline was not ideal and to try to avoid this type of overlap in the future if possible.

➤ Agenda Item 5- Finalize 2021 Lotus Engineering Contract:

- **NEXT STEPS:** Cath Jett, Zoe Dohnal and Julia Ferguson from Lotus Engineering presented this item to the committee and discussion took place.
- Jonathan Greenspan made a **MOTION** to approve the Lotus contract including regional Green House Gas reporting, as presented. He did not receive a second. The motion did not carry and required additional discussion.
- Discussion Continued.
- On a **MOTION** by Marti Prohaska and seconded by Patrick Berry, the Green Team Committee voted to approve the Lotus contract without including regional Green House Gas reporting and to make this recommendation to Town Council. All were in favor other than Cath Jett and Jonathan Greenspan. Vote was 4-2. Inga Johansson and Mike Follen were not present and did not vote.
- The Green Team Committee will not receive regional GHG reporting this year.

➤ Agenda Item 6- Approval of the final memo to Council regarding the Solar Incentive Program:

- **NEXT STEPS:** Marti Prohaska presented this item to the committee and discussion took place.
- On a **MOTION** by Patrick Berry and seconded by Jonathan Greenspan, the Green Team Committee voted unanimously to support a new statement of services from S.U.N. and to move forward with proposal with S.U.N. at the reduced price.

➤ Agenda Item 7- Approval of 2021 Meeting Dates:

- **NEXT STEPS:** Christina Lambert presented this item to the committee and discussion took place.
- The Green Team Committee **APPROVED** the proposed 2021 meeting dates as presented.
- Christina will send out calendar reminders with the approved 2021 dates.
- Christina will send the approved 2021 dates to Kathrine Warren so they can be added to the website.

➤ Agenda Item 8- Finalize 2021 Work Plan including sign up for Green Tips:

- On a **MOTION** by Patrick Berry and seconded by Jonathan Greenspan, the Green Team Committee voted unanimously to continue this item to the December Green Team Committee meeting.

**Other Business:**

Agenda Item 11-

Jonathan Greenspan updated the committee regarding a couple items. Mike Follen gave back his composter and it was given to another family to use. Mike gave Jonathan his clean-up day committee notes. We need to start thinking about who is going to lead the 2021 clean-up day event. Jonathan also stated that TMVOA is going to install a new trash facility in Town Hall. This has not gone through DRB yet. Jonathan suggested that the committee consider recommending an Ordinance. Cath noted that there is a lot to discuss and that this should be added to the December Green Team Agenda instead of under other business.

There being no further business, on a **MOTION** by Jonathan Greenspan and seconded by Patrick Berry, the Green Team Committee voted unanimously to adjourn the meeting at 3:16 p.m.

**Reminder:**

The next Green Team Committee meeting will take place on Tuesday, December 8, 2020 at 2:00 p.m. via Google Hangouts.

Respectfully submitted,

Christina Lambert

Senior Deputy Town Clerk  
Town of Mountain Village



# 2021 Active Work Plan

*Budget: \$50,000*

*Current Budget Variance: \$11,015*

## 1. Green Tips

Each member will come up with two small items to be included on the Town website, Mayor’s Minute.

Tips need to be at least 100 words and information source must be provided emailed to [kwarren@mntvillage.org](mailto:kwarren@mntvillage.org)

Budget Allocation: *Communication channels will be free.*

Time Frame	Team Member(s)	Time Spent	Date Completed
January – February	•		
March - April	•		
May – June	•		
July – August	•		
September – October	• •		
November – December	• •		

## 2. 2020 Greenhouse gas reporting - Municipal, Community, and Regional

Budget Allocation: *Services paid in 2020 (\$17,347.32)*

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January – March	<ul style="list-style-type: none"> <li>Develop a 2020 community-wide GHG emission inventory</li> <li>Identify possible policy items that can be developed</li> <li>Develop SOP for data collection for Regional GHG inventory</li> </ul>	TMV Staff and Lotus Eng.		
April-May	<ul style="list-style-type: none"> <li>Develop a 2020 municipal GHG emission inventory</li> <li>Develop 2020 Regional GHG Inventory</li> </ul>			
May-July	<ul style="list-style-type: none"> <li>Summary of Findings</li> </ul>			
September – December	<ul style="list-style-type: none"> <li>Evaluate outcomes and plan for 2022</li> </ul>			

### 3. Mountain Village Clean-Up Day

Budget Allocation: **\$1,400**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January – March	<ul style="list-style-type: none"> <li>Appoint new chair</li> <li>Create a plan with an established subcommittee</li> </ul>	<i>subcommittee chair</i>		
April	<ul style="list-style-type: none"> <li>Acquire permits, permission for alcohol, establish the date of the event.</li> <li>Figure out accessibility for the Plaza location.</li> <li>Have researched and chosen trash scale for events.</li> </ul>			
May – August	<ul style="list-style-type: none"> <li>Market event</li> <li>Define measurable outcomes</li> <li>Acquire prizes and sponsors.</li> <li>Settle all equipment details.</li> <li>Prepare trash contest, and script for MC.</li> </ul>			
September – December	<ul style="list-style-type: none"> <li>Evaluate outcomes and plan for 2021</li> </ul>			

Notes:

- **What is the goal of this event? Is it to promote the Green Team? To coordinate with other entities' cleanup days**
- Should electronics recycling be added?
- **Should a multi-year plan be developed?**

### 4. Composting Program

Budget Allocation: **\$20,000**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January – February	<p>Individual Composters</p> <ul style="list-style-type: none"> <li>Continue working with <a href="#">Biocompet Composter</a> in creating a personal composter for the program.</li> <li>Continue analysis of data-tracking system for waste mitigation.</li> <li>Once more units are available reissue application.</li> <li>Develop an education plan to teach and guide recipients on how to use</li> <li>If multi-unit composter is available, develop a plan for the HOA to manage and correctly use the system.</li> </ul> <p>Market on the Plaza Composting Program</p> <ul style="list-style-type: none"> <li>Look into the logistics and operation of this program</li> </ul>	Patrick Berry - <i>subcommittee chair</i> Heidi Stenhammer Jonathan Greenspan Mike Follen TMV Staff		

February – May	<p>Individual Composters</p> <ul style="list-style-type: none"> <li>Develop a plan for use of the final product produced from the composter</li> </ul> <p>Market on the Plaza Composting Program</p> <ul style="list-style-type: none"> <li>Finalize steps for operating and how to utilize program.</li> </ul>			
May – September	<p>Individual Composters</p> <ul style="list-style-type: none"> <li>Mitigate any issues</li> </ul> <p>Market on the Plaza Composting Program</p> <ul style="list-style-type: none"> <li>Facilitate program</li> </ul>			
September - Dec	<ul style="list-style-type: none"> <li>Evaluate Outcome – recommendations for 2021</li> </ul>			

## 5. Voluntary Single-Use Plastics Resolution Implementation and Education

Budget Allocation: **\$3,000 (education/communication) + \$7,800 ((third party consultants Upstream)**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January – March	<ul style="list-style-type: none"> <li>Work with Upstream to develop a plan and actions</li> <li>Relook at data about distributors, and inventory to create a baseline.</li> <li>Finalize conversion from voluntary to mandatory based on state level</li> <li>Ordinance Vote</li> </ul>	<p>Inga Johansson <i>subcommittee chair</i></p> <p><b>Jeff Proteau</b></p> <p>Jonathan Greenspan</p> <p><b>Mike Follen</b></p> <p>TMV Staff</p>		
April – December	<ul style="list-style-type: none"> <li>Follow Upstreams recommendations and develop a certification process/incentive. Have business and patron toolkit and educational marketing material.</li> <li>Finalize alternative distributor/product list.</li> </ul>			
June	<ul style="list-style-type: none"> <li>Change business licenses to have a paragraph that acknowledges the plastics ban</li> </ul>			
4th Quarter	<ul style="list-style-type: none"> <li>Evaluate Outcomes - recommendations for 2021</li> </ul>			

## 6. General Green Team Communication and Education

Budget Allocation: **\$3,000**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January – December	<ul style="list-style-type: none"> <li>Market all Sustainability and Green Team Initiatives.</li> </ul>	TMV Staff		

## 8. Green Team Dues and Fees

Budget Allocation: **\$2,000 (CC4CA) + \$1,785 (Sneffels Energy Board Dues and Fees)**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January-December	<ul style="list-style-type: none"> <li>Attend CC4CA meetings and communicate developments with GT and Council.</li> <li>Attend Sneffels Energy Board meetings and communicate developments with GT and Council.</li> </ul>	TMV Council and Staff		

## *Projects Outside of Green Team Budget*

***External Budget: \$185,000***

### 9. Solar Rebate Initiative

Budget Allocation: **\$20,000 (third party consultants SUN)**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January-March	<ul style="list-style-type: none"> <li>Finalize subcommittee strategy with SUN</li> <li>Build a simple application.</li> <li>Create a robust communication plan</li> </ul>	Marti		
March-September	<ul style="list-style-type: none"> <li>Continue community outreach and education.</li> <li>Facilitate program and ensure exhaustion of funds.</li> </ul>			
October-Dec.	<ul style="list-style-type: none"> <li>Evaluate Outcomes - recommendations for 2021</li> </ul>			

Budget Allocation: **\$50,000 comes from planning budget for rebate incentive funds**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January-March	<ul style="list-style-type: none"> <li>Finalize subcommittee strategy.</li> <li>Build a simple application.</li> <li>Create a robust communication plan</li> </ul>	Marti		
March-September	<ul style="list-style-type: none"> <li>Continue community outreach and education.</li> <li>Facilitate program and ensure exhaustion of funds.</li> </ul>			
October-Dec.	<ul style="list-style-type: none"> <li>Evaluate Outcomes - recommendations for 2021</li> </ul>			



## 10. [Farm to Community Program](#)

Budget Allocation: **\$60,000**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January	<ul style="list-style-type: none"> <li>Launch 2020 application and communication plan</li> </ul>	TMV Staff and GT distribution volunteers		
March – June	<ul style="list-style-type: none"> <li>Finalize program contributions, budget and contracts with farming partners</li> <li>Process applications and payment</li> </ul>			
June-September	<ul style="list-style-type: none"> <li>Organize distribution and volunteers</li> </ul>			
October-December	<ul style="list-style-type: none"> <li>Evaluate outcome</li> </ul>			

## 11. Cedar Shake Rebate Program

Budget Allocation: **\$50,000 with an additional TMVOA match of \$50,000**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January-December	<ul style="list-style-type: none"> <li>Work with staff to update and monitor the program</li> </ul>	TMV Staff		

## 12. Defensible Space Rebate Program

Budget Allocation: **\$25,000 with an additional TMVOA match of \$25,000**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January-December	<ul style="list-style-type: none"> <li>Work with staff to update and monitor the program</li> </ul>	TMV Staff		

## 13. REMP Funds allocation

Budget Allocation: **There is no money allocated for this in the 2020 budget.**

Time Frame	Action Item	Team Member(s)	Time Spent	Date Completed
January-December	<ul style="list-style-type: none"> <li>Work with staff to update and monitor the REMP program</li> <li>Utilize annual REMP funds toward energy and GHG reduction initiatives.</li> </ul>			

# *Items for Consideration*

## Work towards a sustainable community

- Work with staff to update and monitor REMP program
- Prepare and discuss ideas for the Environment and Sustainability of the Mountain Village Master Plan.
- Review and discuss Mountain Village's efforts to carbon neutrality.
- Zero Waste Initiatives updates regarding regional approaches to reduce, repurpose, reuse and recycle specific waste streams to increase landfill diversion.
- Regional and local compost efforts and measurable on the carbon footprint.
- Quantitative data on recycling and waste for temservice contracts.
- Eliminate the use of most newsprint and be paperless.
- Help staff find alternative mechanized equipment that is less polluting and more efficient Such as vehicles, landscape equipment, and other related items.
- Review franchise fees with SMPA and Black Hills to offset green energy projects.
- Create a credit for large hotels that create energy systems that reduce their carbon footprint
- Update building codes to 2018. Draft created by staff prior to departure

## Education of Green Team

- Continue to learn and examine waste streams, recycling, repurposing and reduction processes locally, regionally, state wide, nationally and around the world. This includes zero waste and impacts on composting and emissions impact.
- Discussions about invasive weeds and eradication and pesticides used. Consider hosting class with CSU extension office or other entity for local landscapers, home gardeners, and property owners - maybe not Green Team specific but open to community
- Drought impacts and run off issues related to extreme weather events
- Colorado parks and wildlife impacts and organizations
- Forest management and the impact to our community
- Memberships with professional organizations
- Attendance to educational conferences



## AGENDA ITEM #5

**DATE: December 8, 2020**

**TO: Green Team Committee**

**FROM: Cath Jett, Chair**

**SUBJECT: Finalize 2021 Work Plan**



This memo is to remind the team that we need to present our final work plan for 2021 at their December Town Council meeting.

**Please use the Work Plan to study and prepare to comment at the meeting on Tuesday.** You can comment directly in the document if that is easier.

Some things to consider:

- Town Clean Up
  - Appointment of new chair
  - Should this be a coordinated effort with other jurisdictions and entities?
  
- Composting
  - Should we continue with the current composter or explore other options?
  - Management of the Farm to Community composting plan
  
- Green House Gas Inventories
  - Develop specific policy items to present to council based on Lotus' recommendations
  - Develop SOP for data collection for regional efforts
  - Develop one region wide goal that can be used to develop policy in all jurisdictions
  
- Planet over Plastics
  - Volunteer ordinance becomes mandatory in January. Community education development?
  - Develop program for reusables for local businesses
  - Should we consider policy development?
  
- Other:



## **AGENDA ITEM #7**

**DATE: December 8, 2020**

**TO: Green Team Committee**

**FROM: Cath Jett, Chair**

**SUBJECT: Appointment of Town Clean Up Chairperson**

Mike Follen, the former chairperson, has moved and left the position open. This is the 3rd year of hosting the Town Clean Up and has been a successful program. There are many SOPs already in place and the support from Town Staff is very helpful.

There has been talk of coordinating more closely with TSG and/or the Town of Telluride on dates and scope. This will need to be finalized early in the process.

Although it is preferred that a current member of the Team step into this position, we could consider a member of the public to help.



## Memorandum

To: Town Council – Green Team

From: Patrick Berry – MTV Town Council

### Comparison of EAP 2018 GHG and Lotus Engineering 2019 GHG reports.

This comparison was executed to provide an objective basis to inform decision making regarding regional green-house gas study funding choices. The comparison attempts to objectively outline material differences and value points between the two studies.

The page numbers referenced in the following bullet points reference the file named *Consolidated Reports.pdf*. Direct side by side comparisons could not always be made but the reports were similar enough in nature to easily execute general comparisons where applicable. Below are bullet point summarizing the material differences, findings, and issues with both reports.

- Both reports reference using GPC methodology but Lotus is much more disciplined in the application as it pertains to green credits and carbon offsets.  
*See p. 36 (Lotus) bottom paragraph. EAP represents these offsets throughout their report.*
- Shared regional resources in the form of the gondola, airport, and wastewater treatment plant have large variances between the two studies due to treatment of these assets. EAP uses previously agreed to methodology for allocation where LOTUS is allocating along GPC scope guidelines only.  
*See p. 61 (EAP)*
- Mathematical errors in both presentations.  
*P. 8 (Lotus), p. 60 (EAP - this has been previously corrected)*
- Open Space Carbon Sequestration – Does not appear to be included in Lotus but referenced in EAP.  
*p. 52 (EAP)*

- EAP has a more granular segmentation of projects in place specific to Mountain Village and also the carbon impact estimates.  
*p. 52 (EAP)*
- Both reports point to residential and commercial buildings being the highest emission factor for Mtn. Village. Ratios differ due to the amount of inputs included in either report but are very similar in their proportion. *This is the key takeaway.*
- Natural Gas is highlighted as a threat for future emissions based on current trends by both EAP and Lotus reports.
- Both recommend efficiency enhancements to mitigate electricity usage. Both recommend investment in renewables toward increased electrification.
- EAP incorporates seasonal temperature and snowfall totals in their analysis  
*P.56 (EAP)*
- EAP has more specific strategies and recommendations for achieving goals. Lotus references “High Level” in their recommendations. Neither quantifies an estimate for carbon reduction.  
*P. 57 (EAP) P.42 (Lotus)*

The overall findings of both reports are very similar in their findings and each organization has its own unique strengths. Mathematical errors existed in both reports but do not appear to compromise the integrity of either report. None of the underlying spreadsheets or databases were evaluated.

**Lotus Engineering** – Lotus has a proven history of providing these types of services to multiple municipalities. They draw from a larger talent pool, have more robust staffing, and better funding than EAP. Lotus has none of the personal nor political baggage that EAP carries. Staff at the mountain village have indicated a preference to work with Lotus over EAP. Lotus comes at a significantly higher cost premium.

**EAP** – Eco has worked with the Mountain Village for multiple years. They are the established provider for regional green-house gas inventory measurement and have established relationships with existing staff across all regional participants. Being locally based has the advantage of specific understanding of regional issues, infrastructure, culture, and projects already in place. Mountain Village maintains a certain level of control over the organization by holding an established board seat. SMPA and Tri-State will be integral to future reductions. EAP has existing relationships with both organizations. EAP provides services to which Mt. Village currently subscribes and benefits from.

It should be noted that replacing EAP with another regional solution would likely take multiple years to establish. Failure to adopt by regional partners is a risk which would leave MTV as a stand-alone funder. Mt. Village loses board level representation with this choice.



# Town of Mountain Village GHG Inventories and Reduction Strategies

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Town Council Meeting

October 15, 2020

# Today's Goals:



Share results of the Mountain Village Greenhouse Gas Inventories and Business-as-Usual emission projections.



Share the final list of relevant greenhouse gas reduction strategies and projected emissions savings for Mountain Village.



Share the community values and co-benefits of climate action that can be enhanced through the strategies in the climate action plan.



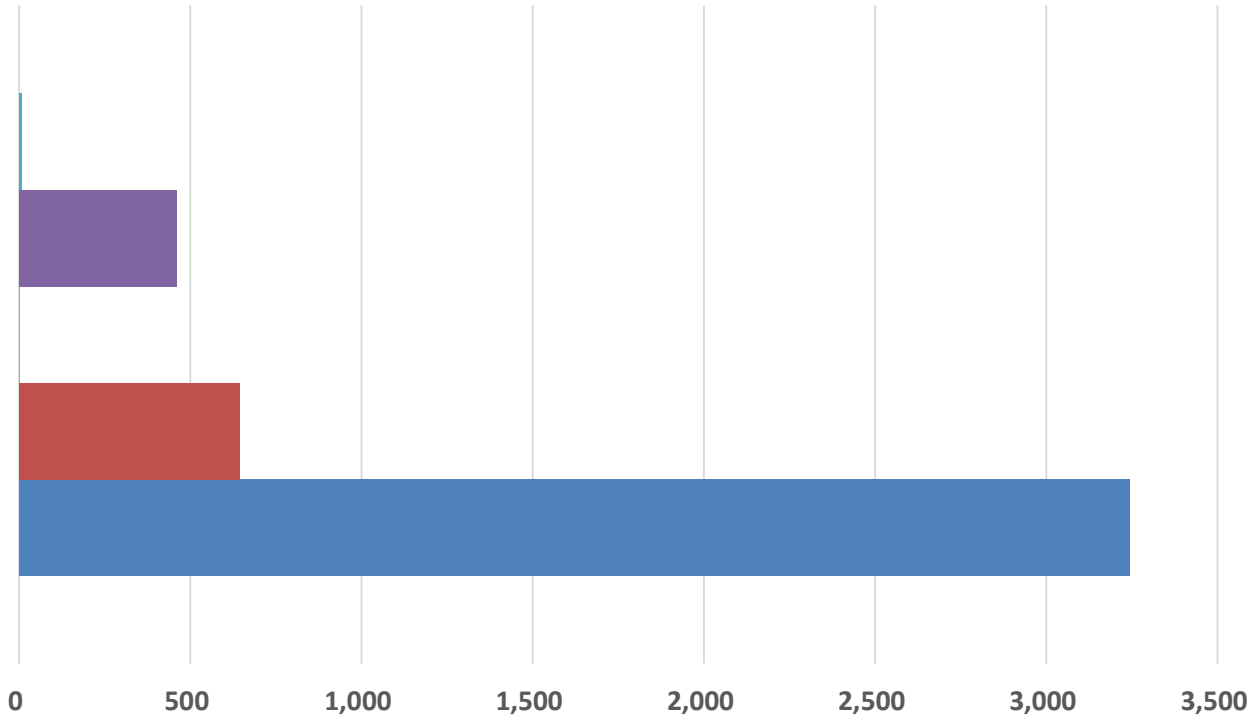


# Mountain Village's Greenhouse Gas Emissions

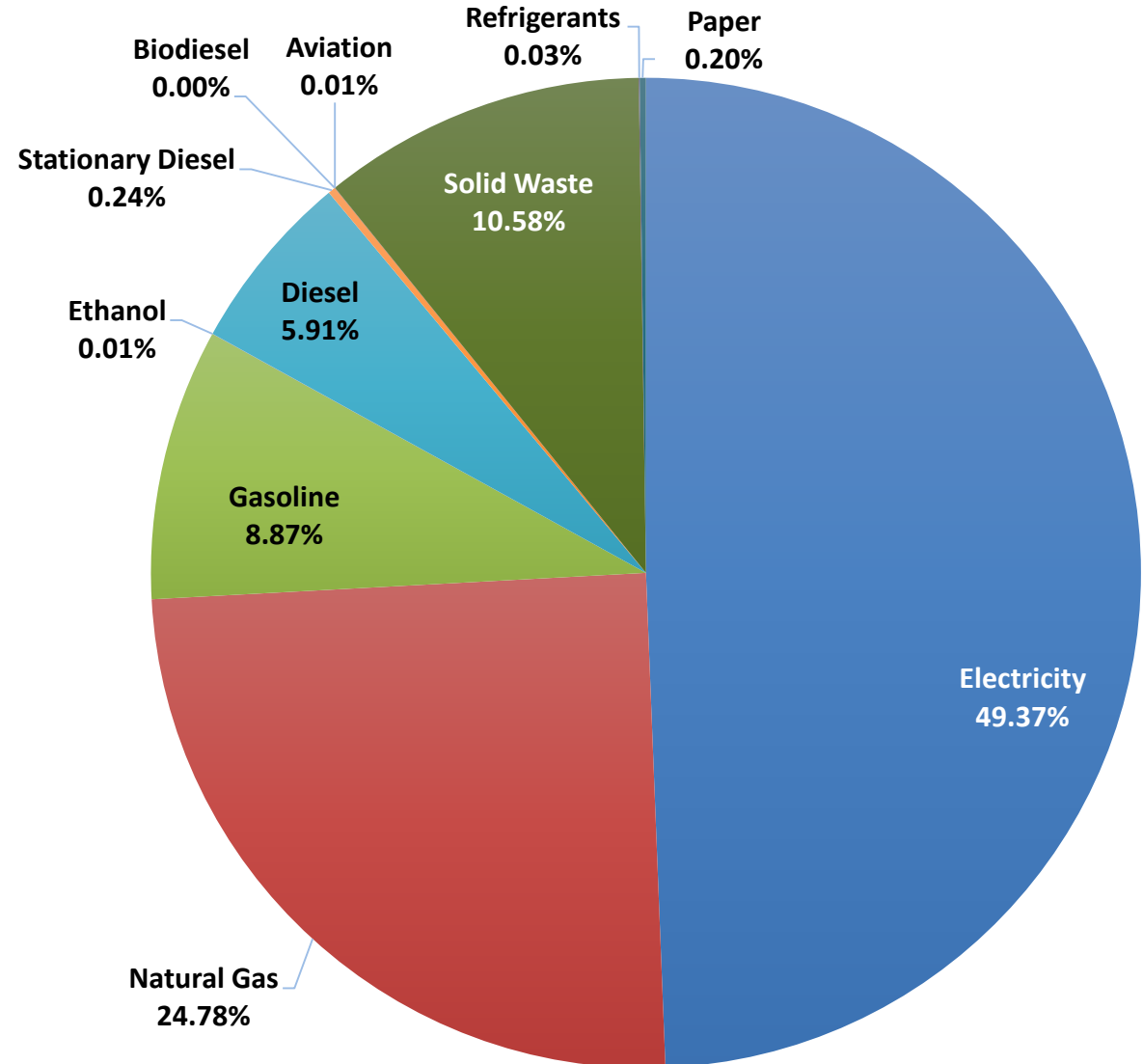
2019 Municipal Inventory

# Mountain Villages' 2019 Municipal GHG Emissions (mt CO<sub>2</sub>e)

GHG Emissions by Sector (mt CO<sub>2</sub>e)



- Consumption Based
- Waste
- Industrial Processes and Product Use
- Transportation
- Stationary Energy



# 2018-2019 Municipal Emissions Comparison

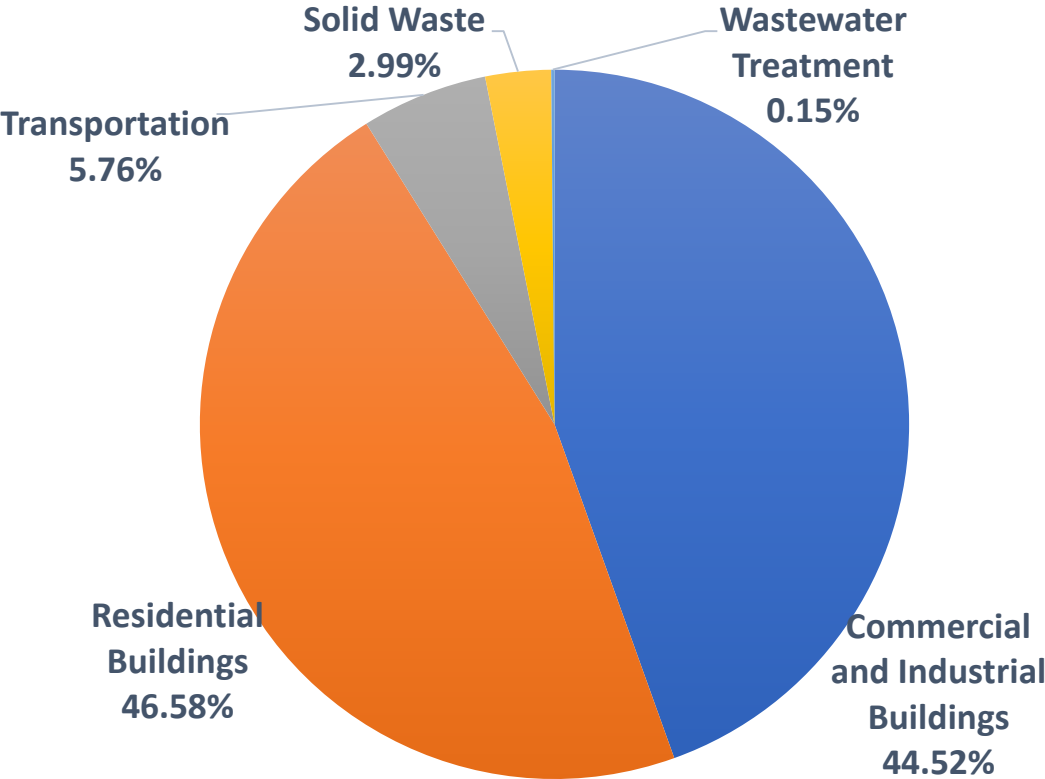
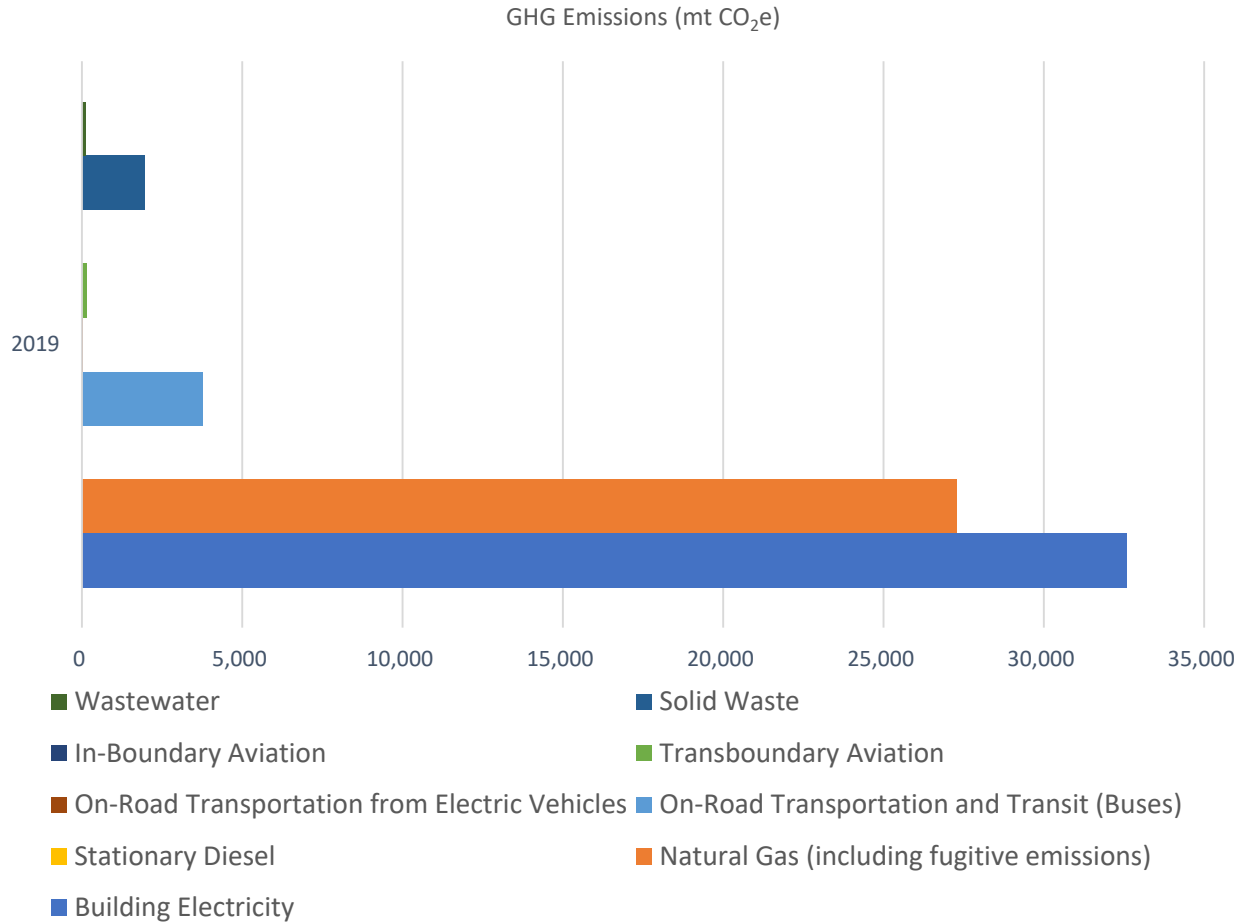
<b>Data</b>	<b>2018 Value (mt CO<sub>2</sub>e)</b>	<b>2019 Value (mt CO<sub>2</sub>e)</b>
Electricity consumption	4,769	2,152
Natural gas consumption	883	1,080
Facility diesel consumption	N/A	4
Renewable energy generation	N/A	(1,411)
Gasoline consumed by municipal vehicles and equipment (includes ethanol)	518	342
Diesel consumed by municipal vehicles and equipment	167	157
Employee Commuting	N/A	152
Employee Business Travel	N/A	0.5
Waste Landfilled	N/A	461
Waste Recycled	N/A	(326)
Waste Composted	N/A	N/A
Refrigerant Use in Buildings	N/A	1
Refrigerant Use in Vehicle Fleet	N/A	N/A
Material Purchases (paper, fertilizer, food etc.)	N/A	9
<b>Total Emissions</b>	<b>6,337</b>	<b>4,358</b>



# Mountain Village's Greenhouse Gas Emissions

2019 Community Inventory

# Mountain Villages' 2019 Community GHG Emissions (mt CO<sub>2</sub>e)



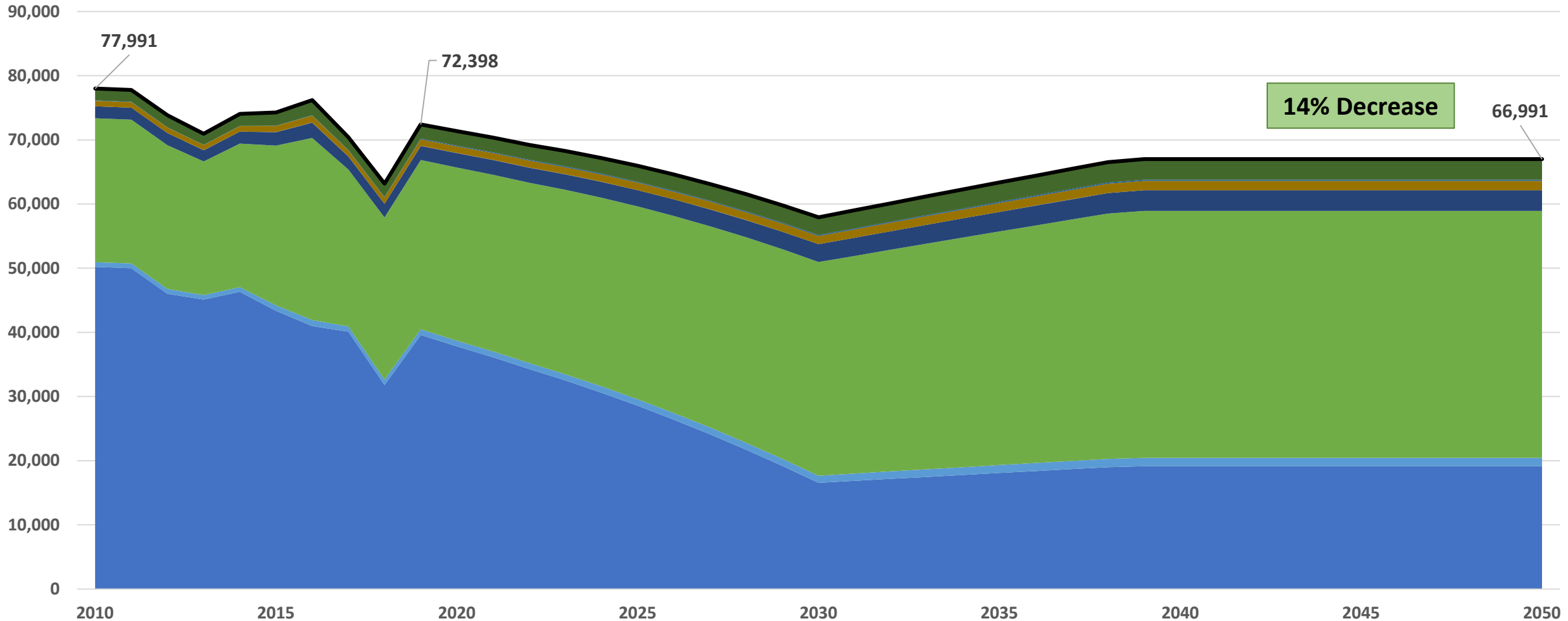
# 2018-2019 Community Emissions Comparison

<b>Data</b>	<b>2018 Value (mt CO<sub>2</sub>e)</b>	<b>2019 Value (mt CO<sub>2</sub>e)</b>
Electricity Consumption	38,286	39,570
Natural Gas Consumption	23,466	27,277
Stationary Diesel Consumption	N/A	0
Government Energy Use	1,594	Included in commercial building energy use estimates
Renewable Energy Generation	(1,763)	(1,880)
Fugitive Emissions from Coal and Oil & Gas	N/A	890
On-Road Vehicles (not including Electric Vehicles)	6,972	2,204
Transit	N/A	1,002
Electric Vehicles	N/A	30
Aviation Electricity and Fuel Consumed	9,960	129
Off-Road Transportation	N/A	N/A
Food	6,972	N/A
Waste Landfilled	4,980	1,530
Waste Recycled	N/A	(1,089)
Wastewater Treatment	2,988	86
Cement	597.6	N/A
Well-to-pump Emissions	3,984	N/A
Carbon Sequestration	(312)	N/A
Farm-To-Community Program	(6)	N/A
<b>Total</b>	<b>99,600</b>	<b>72,398</b>



# Business-As-Usual Emission Projections

# Mountain Villages' Emission Projections (mt CO<sub>2</sub>e)



186

- Electricity Emissions
- Total Gasoline, Diesel, and Ethanol Emissions
- Aviation Emissions
- Natural Gas Fugitive Emissions
- Electric Vehicle Emissions
- Waste Emissions
- Natural Gas Emissions
- Transit Emissions
- Wastewater

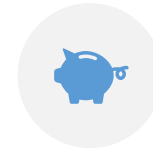




# Our Community's Values

Co-Benefits of Climate Action Work

# Community Values



**Promote fiscal responsibility**



**Support a circular economy and equitable, higher quality, less impactful products**



**Promote cultural and behavioral change through education and engagement programs**



**Enhance the quality of life for residents and visitors**



**Support regional food networks and local food sourcing**



**Enhance equity throughout the community**



# GHG Reduction Strategies

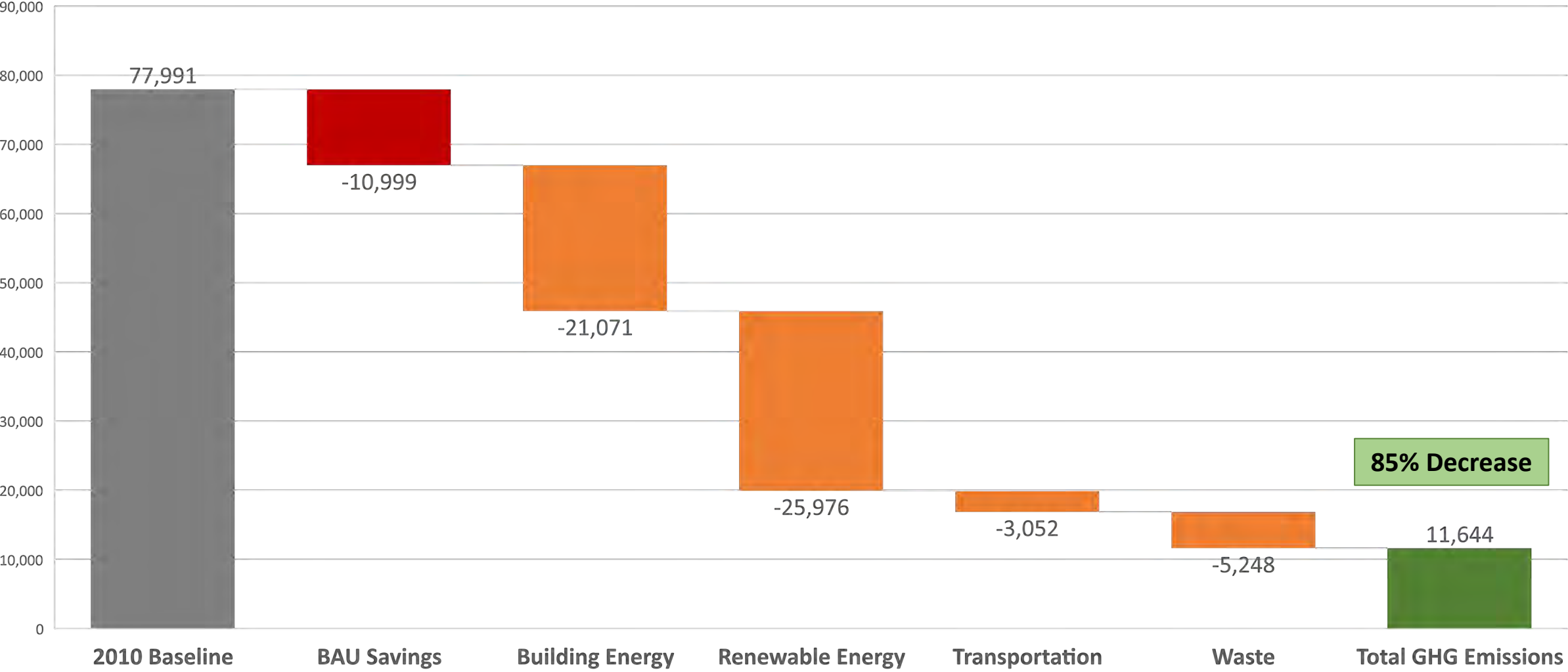
# Research on potential strategies: Leading communities

---

Which peer communities were researched?

- Aspen
- Summit County
- Whitefish, MT
- Telluride
- Missoula, MT
- Durango
- Ketchum, ID
- Boulder
- Carbondale
- Eagle County
- Fort Collins

# Mountain Villages' 2050 Emissions after Strategies are Implemented (mt CO<sub>2</sub>e)



# Transportation Strategies

T1: Reduce single occupancy vehicle travel.

T2: Support equitable electric vehicle adoption.

T3: Switch government fleet vehicles to electric vehicles.

T4: Educate the public on behavior changes.

## **Cumulative Impact:**

**4% reduction in baseline emissions  
by 2050**

# Buildings Strategies

B1: Promote energy efficiency for residential buildings.

B2: Promote energy efficiency for commercial buildings.

B3: Promote fuel switching (i.e. electrification).

B4: Reduce energy usage in municipal buildings.

## **Cumulative Impact:**

**27% reduction in baseline emissions  
by 2050**

# Renewable Energy Strategies

RE1: Implement policies that support comprehensive renewable energy growth for the community.

RE2: Support policies to advance a clean energy agenda in the state.

## **Cumulative Impact:**

**33% reduction in baseline emissions  
by 2050**



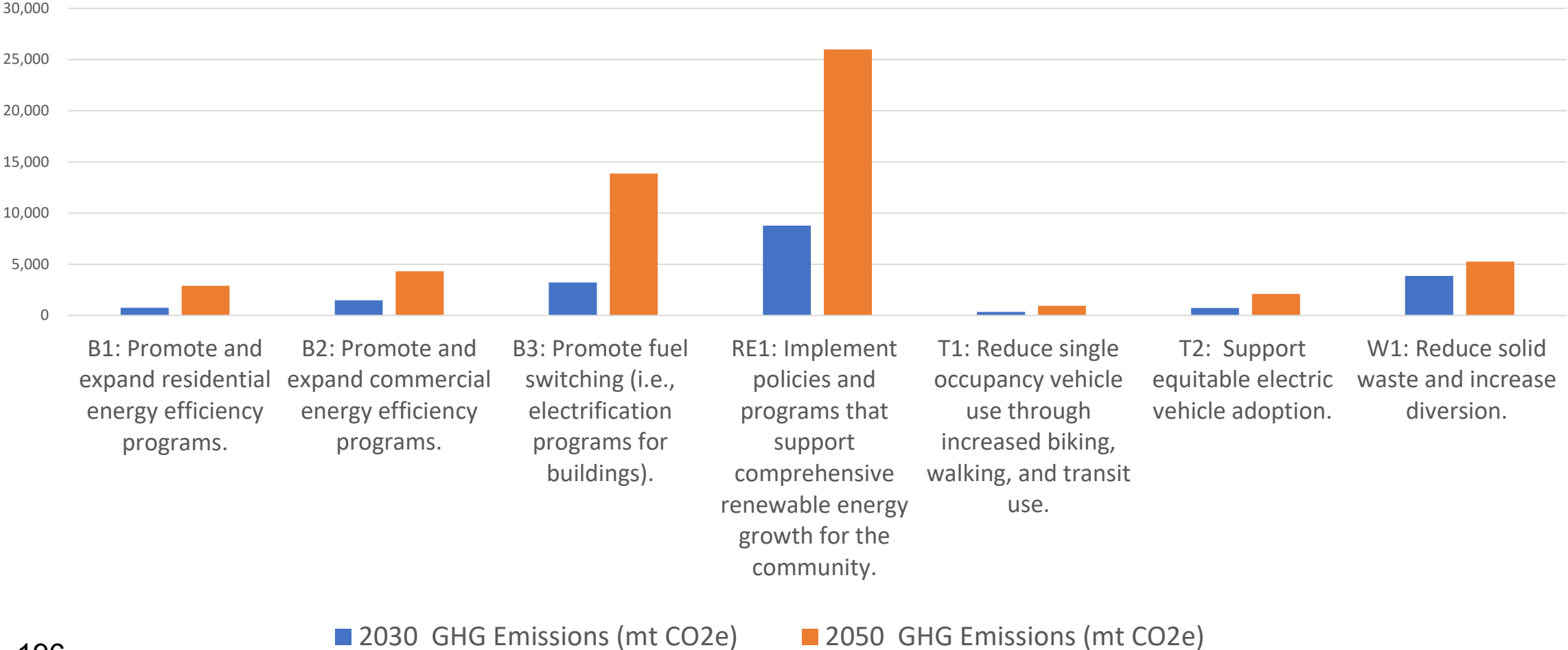
# Waste Strategy

W1: Reduce solid waste and increase diversion.

## **Cumulative Impact:**

7% reduction in baseline emissions  
by 2050

# Comparison of Strategies by Reduction Potential (mt CO<sub>2</sub>e)




# Thank You!

---

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lotus  
engineering & sustainability



# TOWN OF MOUNTAIN VILLAGE CLIMATE ACTION PLAN

September 2020

# Acknowledgments

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Adam Wozniak, Colorado Department of Public Health and the Environment (CDPHE)

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Christina Lambert, Senior Deputy Town Clerk

Dale Wells, CDPHE

*Heidi Stenhammer, Telluride Mountain Village Owners Association*

*Inga Johansson, Community Member*

JD Wise, Town of Mountain Village

*Jeff Proteau, Telluride Ski and Golf Company*

Jim Loebe, Town of Mountain Village

*Jonathan Greenspan, Community Member*

Kim Holstrom, San Miguel County

Commissioner

Kim Wheels, Eco Action Partners

*Marti Prohaska, Mountain Village Town Council*

Michael Martelon, Visit Telluride

*Mike Follen, Community Member*

*Patrick Berry, Town of Mountain Village Council*

Terry Schuyler, San Miguel Power Association

Tyler Simmons, Eco Action Partners

Wiley Freeman, San Miguel Power Association

Zoe Dohnal, Town of Mountain Village

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Lotus Engineering and Sustainability, LLC, supported this work for the Town of Mountain Village:

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## EXECUTIVE SUMMARY

### MOUNTAIN VILLAGE: A COMMUNITY FOCUSED ON CLIMATE ACTION

Nestled in the San Juan Mountains and surrounded by natural beauty, abundant outdoor recreation opportunities, and the native wilderness of the Rocky Mountains, the Town of Mountain Village (Town/Mountain Village) is committed to protecting and enhancing the natural environment. Since the Town's incorporation, sustainability has been a top priority for Mountain Village's community and leaders. The Town has participated in regional work to analyze and estimate community greenhouse gas (GHG) emissions since 2010 and has developed and supported many community programs to reduce energy use and community-generated waste, such as the [Smart Building Incentive Program](#) and the [Compost Incentive Program](#).

Mountain Village recognizes the urgent need to reduce emissions and prevent the worst impacts of climate change. If current emissions levels are not abated, the Town and similar mountain and tourist-based communities across Colorado and the southwest are in danger of experiencing significant changes in precipitation, seasonality, and snowpack as evidenced by historic data.<sup>1</sup>



<sup>1</sup> Environmental Protection Agency. (2017). What Climate Change Means for Colorado. Retrieved from [19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-co.pdf](https://www.epa.gov/sites/production/files/2016-09/documents/climate-change-co.pdf) on June 20, 2020.



Recognizing the need to take a more proactive role in reducing global GHG emissions and help to prevent the most dire impacts from climate change, in 2020 Mountain Village decided to build off the Town’s past efforts and work towards becoming a carbon-neutral community by 2050. This effort required developing a community-wide GHG inventory in order to understand the specific emissions sources and impacts that the Town could influence, as well as modeling the status-quo emission projections over the coming years. The resulting Climate Action Plan (CAP) for Mountain Village presents the framework for achieving significant emissions reductions in the community between 2020 and 2050.

## MOUNTAIN VILLAGE’S 2019 GHG EMISSIONS INVENTORY

Mountain Village’s 2019 GHG emissions inventory provides an analysis of community-based activities and shows an emissions total of 72,269 metric tons of carbon dioxide equivalent (mt CO<sub>2</sub>e), with a majority of emissions coming from the energy used in buildings. See Figure ES-1 and ES-2.

The largest share of emissions comes from the use of energy to power, heat, and cool buildings and outdoor systems (such as snow melt systems). Emissions from residential buildings make up 48 percent of the community’s total, while commercial and industrial buildings make up 45 percent of the community’s total. Due to its small size and abundant transit options, Mountain Village has relatively fewer than average emissions from transportation activities in the community (four percent).<sup>2</sup> Three percent of emissions come from solid waste disposal in landfills. One-tenth of one percent of emissions come from wastewater treatment processes.

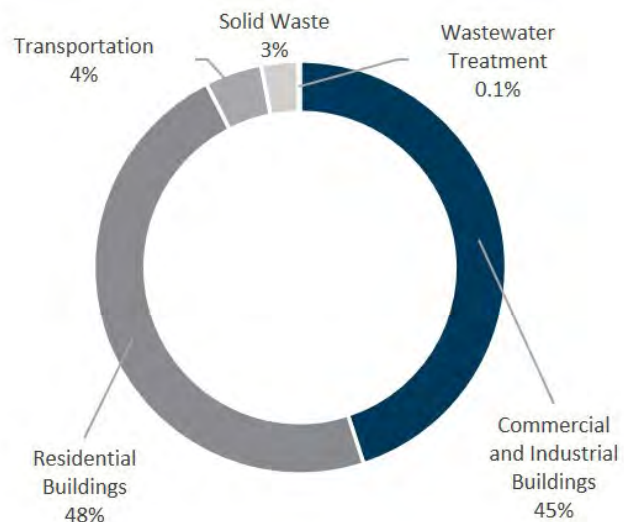


Figure ES-1. Mountain Village’s 2019 emissions by sector.

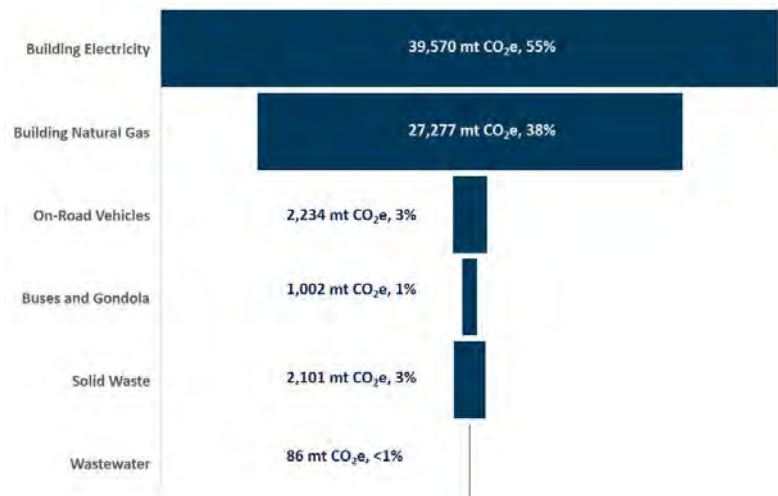


Figure ES-2. Mountain Village’s 2019 emissions by source.

<sup>2</sup> Based on Lotus’ familiarity with community-generated emissions inventories in Colorado from other work. Transportation in Mountain Village accounts for four percent of the 2019 GHG emissions inventory, compared to an average of around 30 percent of emissions for many communities.

## MOUNTAIN VILLAGE'S CLIMATE ACTION PLAN

Mountain Village's top priority is ensuring that the climate action work benefits all community members by enhancing the quality of life and protecting the valued natural resources and surroundings. Through conversations with Town staff and the Town's Green Team Committee, six key community values for the Town's climate action work were identified; see the grey box to the right. By referencing these values throughout the implementation of the climate action strategies and as the Town identifies specific policies and programs that are relevant to pursue, the Town will ensure that its climate action work continues to align with the vision of a future it wishes to maintain for Mountain Village.

A final list of strategies for emissions reductions will help the community move towards its 2050 carbon neutrality goal and support its community values. The resulting CAP includes 11 strategies with a collective 33 suggested implementation actions that the Town and the broader Mountain Village community will embark on in the coming years to reduce the community's GHG emissions. If all strategies and targets established in the CAP are achieved, Mountain Village will reduce its emissions by over 85 percent by the year 2050, based on a 2010 emissions baseline. Mountain Village's climate action strategies are:

### MOUNTAIN VILLAGE'S CLIMATE ACTION VALUES

- Promote fiscal responsibility.
- Enhance the quality of life for residents and visitors.
- Support a circular economy and equitable, higher quality, less impactful products.
- Promote cultural and behavioral change through education and engagement programs.
- Support regional food networks and local food sourcing.
- Enhance equity throughout the community.

1. Reduce single-occupancy vehicle use through increased biking, walking, and transit use.
2. Support equitable electric vehicle adoption.
3. Switch government fleet vehicles to electric vehicles.
4. Educate the public on behavior changes.
5. Promote and expand residential energy efficiency programs.
6. Promote and expand commercial energy efficiency programs.
7. Promote fuel switching (i.e., electrification programs for buildings).
8. Reduce energy usage in municipal buildings.
9. Implement policies and programs that support comprehensive renewable energy growth for the community.
10. Support policies to advance a clean energy agenda in the state.
11. Reduce solid waste and increase diversion.

Each climate action strategy includes at least one, if not several, specific implementation actions that are intended to ensure the strategy is impactful, including suggestions on specific programs and policies that may be most effective to employ for the community to reach its goals.

## **MOUNTAIN VILLAGE: LEADING ON CLIMATE ACTION**

Mountain Village is prepared to help prevent the worst effects of climate change and recognizes that by addressing climate change through the implementation of the strategies outlined in this document, the community can improve quality of life and protect the area’s treasured natural resources. As Mountain Village embarks upon this work, it will benefit from working collaboratively with its local partners, including utilities, regional organizations, and state and national agencies and entities that are also interested in this work; through collaboration and strategic implementation of this Climate Action Plan Mountain Village can achieve its emission reduction goal while ensuring a healthy, equitable, and livable future.





## INTRODUCTION

The Town of Mountain Village (Town/Mountain Village) is committed to creating a healthier, more sustainable, and greener future inclusive of all community members. In 2020, the Town embarked upon multiple efforts to better understand the community’s impact on climate change and identify relevant and impactful greenhouse gas (GHG) emissions mitigation strategies, while working to enhance the quality of life in the community.

Lotus Engineering and Sustainability, LLC (Lotus) completed this work and it included developing the Town’s 2019 community-wide GHG emissions inventory, completing an additional GHG inventory for municipal operations, identifying trends and changes between past and current emissions inventories, creating inventory management plans so that future inventories can be completed in-house, identifying the community’s values and most impactful and realistic strategies for climate action, and modeling emissions under a business-as-usual case scenario. The result is an actionable Climate Action Plan (CAP) that guides the community to reduce its community-wide GHG emissions by 85 percent between 2020 and 2050 (based on a 2010 emissions baseline).

## MOUNTAIN VILLAGE: FOCUSED ON CLIMATE ACTION

Mountain Village is committed to addressing environmental sustainability and climate action through Town operations as well as community-based programs and policies. Incorporated in 1995 and with a full-time resident population of almost 1,500 people, the Town sees a significant increase in population in the winter and summer months due to its



adjacency to world-class skiing facilities, the Town of Telluride (the two communities are connected via a gondola system), and the recreational offerings of the surrounding ecosystem.

Since the Town's incorporation, sustainability has been a top priority for Mountain Village's community and leaders. In partnership with other communities across San Miguel and Ouray counties, Mountain Village supported the development of a [Sustainability Strategy and Action Plan](#) for the region for the years from 2010 through 2020. Through this work, Mountain Village committed to better understanding and reducing its environmental impact through a variety of programs and actions. The Town has participated in regional work to analyze and estimate community GHG emissions since 2010 and has developed and supported many community programs to reduce energy use and community-generated waste, such as the [Smart Building Incentive Program](#) and the [Compost Incentive Program](#).



## THE CALL TO ACTION

The Intergovernmental Panel on Climate Change's 2018 report on the impacts of a 1.5 degree Celsius (2.7 degrees Fahrenheit) increase in global temperatures illustrates the grave results on ecosystems, human health, and our ability to thrive if we do not act quickly, collectively, and effectively to mitigate GHG emissions.<sup>3</sup>

Globally, cities, towns, and urban areas are estimated to be responsible for approximately 75 percent of global carbon dioxide emissions due to the large amount of concentrated activity occurring in densely populated places. These communities can have broad influence and impact on efforts to address climate change mitigation and adaptation and are an integral part of the solution to the climate crisis.<sup>4</sup>



Towns like Mountain Village, while small in population, can have an outsized impact in their role in fighting the climate crisis because of their ability to not only ensure their community is an environmentally sustainable option for travel, but also through educating and influencing visitors to do their part while visiting and after traveling back home.

<sup>3</sup>For more information see <https://www.ipcc.ch/sr15/>.

<sup>4</sup>For more information see <https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/cities/cities-and-climate-change>.

Across the United States, states and towns like Mountain Village are declaring commitments to carbon reduction. Through intentional action and collaboration with the Town's community and local, regional, and state partners, Mountain Village can do its part in mitigating climate change and ensuring a high quality of life for current and future generations of residents and visitors.

## **WORKING TOWARDS A MORE SUSTAINABLE FUTURE**

In 2020, recognizing the need to take a bigger role in reducing global GHG emissions and prevent the most dire impacts from climate change, Mountain Village decided to build off the Town's past efforts and work towards becoming a carbon-neutral community by 2050. This effort required developing a community-wide GHG inventory to understand the specific emissions sources and impacts that the Town could influence, as well as modeling the status-quo emission projections over the coming years. In addition to these activities, Lotus completed research and met with community representatives, including the Town's active Green Team Committee, to build consensus around the high-level strategies that would be most impactful and realistic for the community to implement over the coming years. The resulting CAP for Mountain Village presents the framework for achieving significant emissions reductions in the community between 2020 and 2050.

The CAP includes 11 strategies with a collective 33 suggested implementation actions that the Town and the broader Mountain Village community will embark on in the coming years to reduce the community's GHG emissions. If all strategies and targets established in the CAP are implemented and achieved, ***Mountain Village will reduce its emissions by over 85 percent by the year 2050, based on a 2010 emissions baseline.***





## 2019 GREENHOUSE GAS EMISSIONS INVENTORY

### METHODOLOGY

Mountain Village's 2019 GHG emissions inventory provides an analysis of community-based activities in the 2019 calendar year that resulted in GHG emissions. The inventory is compliant with the Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories (GPC protocol), which is a global standard for GHG emission accounting and reporting. The GPC protocol was developed and launched in 2014 and provides a template from which communities can create comparable and standard emission inventories. The GPC protocol defines what emissions must be reported, as well as how those emissions are to be calculated and reported.

The GPC includes two different reporting levels, BASIC and BASIC+:

- **BASIC:** The BASIC methodology covers stationary energy, in-boundary transportation, and community-generated waste.
- **BASIC+:** The BASIC+ level includes BASIC emission sources, as well as a more comprehensive coverage of emissions sources such as trans-boundary transportation; energy transmission and distribution losses (i.e., the loss of some amount of electricity during the delivery process from the supplier to the customer); industrial processes and product use (IPPU); and agriculture, forestry and other land uses (AFOLU).

Mountain Village chose to complete a BASIC inventory that includes additional emissions from aviation occurring outside the community. The GHGs accounted for in the inventory include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). Emissions are calculated in an inventory workbook created specifically for Mountain Village, and results are totaled as metric tons of carbon dioxide equivalents (mt CO<sub>2</sub>e). Accompanying the community inventory workbook, Lotus also created a corporate GHG inventory for Town operations and identified the key drivers of changes in emissions from the original emissions analysis conducted in 2010 through the current inventory. Lotus also prepared inventory management plans that detail how to collect data and

complete an emissions inventory in-house in future years.

The inventory categorizes emissions by scopes, sectors, and sources. Scopes are defined by globally recognized protocols and provide a very high-level view of emissions with combined sectors and sources within. Per the GPC protocol,<sup>5</sup> the following definitions apply to emission scopes (see Figure 1).

- **Scope 1:** GHG emissions from sources located within the boundary.
- **Scope 2:** GHG emissions occurring as a result of the use of grid-supplied electricity, heat, steam and/or cooling within the boundary.
- **Scope 3:** All other GHG emissions that occur outside the boundary as a result of activities taking place within the boundary.

The boundaries of the 2019 GHG inventory were set as Mountain Village’s town limits.

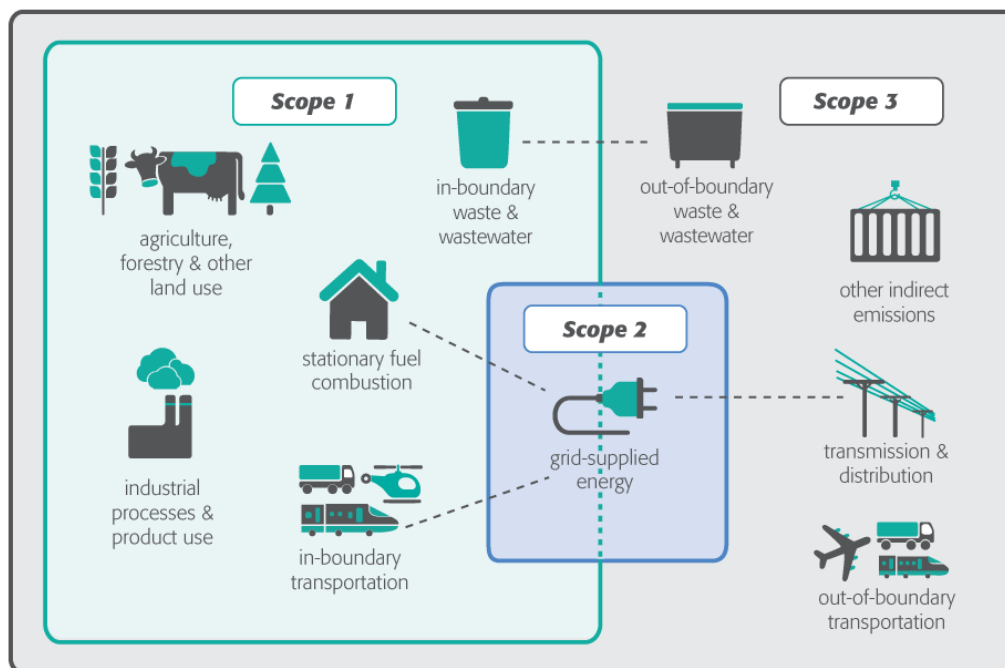


Figure 1. Definitions of emissions scopes.

<sup>5</sup>For more information see [https://ghgprotocol.org/sites/default/files/standards\\_supporting/GPC\\_Executive\\_Summary\\_1.pdf](https://ghgprotocol.org/sites/default/files/standards_supporting/GPC_Executive_Summary_1.pdf).



# KEY FINDINGS FROM THE 2019 INVENTORY

## TOTAL EMISSIONS

The inventory showed a 2019 BASIC emissions value of 72,269 metric tons of carbon dioxide equivalent (mt CO<sub>2</sub>e). An additional 129 mt CO<sub>2</sub>e are attributable to Mountain Village from air travel in the region.

The largest share of emissions comes from the use of energy to power, heat, and cool buildings and outdoor systems (such as snow melt systems). Emissions from residential buildings make up 48 percent of the community's total, while commercial and industrial buildings make up 45 percent of the community's total. Due to its small size, Mountain Village has a smaller proportion of emissions than typically generated from transportation activities in the community.<sup>6</sup> Three percent of emissions come from solid waste disposal in landfills. One-tenth of one percent of emissions come from wastewater treatment processes. See Figure 2.

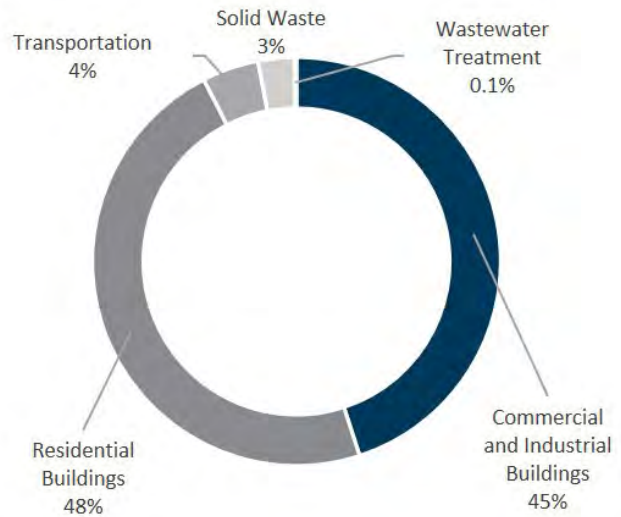


Figure 2. Mountain Village's 2019 emissions by sector.

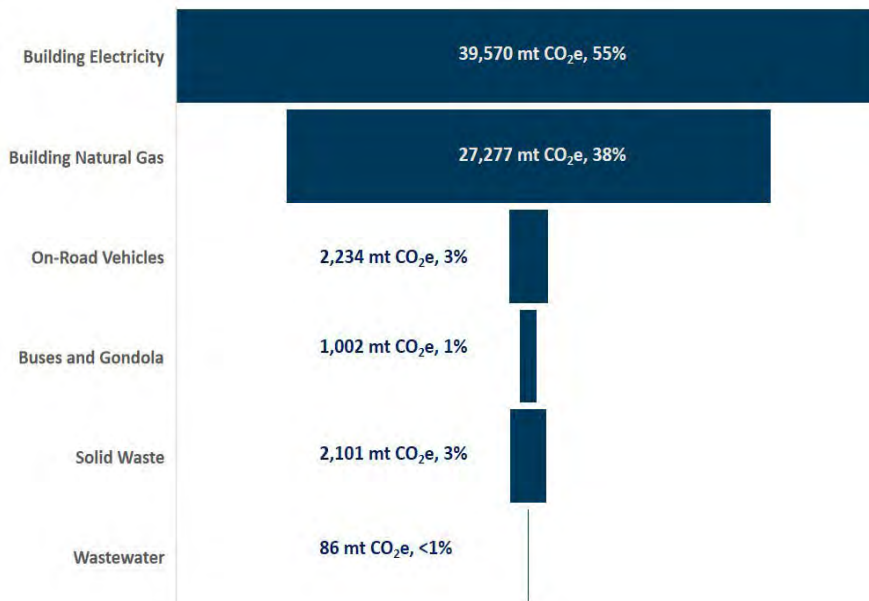


Figure 3. Mountain Village's 2019 emissions by source.

More than half (55 percent) of Mountain Village's emissions were generated from the use of electricity to power buildings. Electricity in Mountain Village is provided by San Miguel Power Association (SMPA), a member-owned electricity cooperative that purchases most of the power it provides members from Tri-State Generation and Transmission (Tri-State). Thirty-eight percent of community emissions are generated from

<sup>6</sup> Based on Lotus' familiarity with community-generated emissions inventories in Colorado from other work. Transportation in Mountain Village accounts for four percent of the 2019 GHG emissions inventory, compared to an average of around 30 percent of emissions for many communities.

the burning of natural gas in the Town, primarily to heat buildings, provide hot water, and operate snowmelt systems. Natural gas in the community is provided by Black Hills Energy. See Figure 3 for a detailed illustration of other emissions by the source activity for Mountain Village.

Mountain Village's emissions per capita are 50.4 mt CO<sub>2</sub>e based on a 2019 resident population of 1,434 people. This is higher than average for many communities across the country, but it should be noted that the large number of tourists have a significant impact on the community's energy use and related emissions. When considering tourists in the community,<sup>7</sup> in 2019 the total per capita emissions for all residents plus visitors was 12.7 mt CO<sub>2</sub>e, which is much more in-line with leading communities across the state.<sup>8</sup> As Mountain Village continues to monitor its progress towards emission-reduction goals, analyzing the per capita emissions value will allow the Town to better understand how economic and community growth are impacting changes in emissions overall.

## BUILDING AND STATIONARY ENERGY EMISSIONS

The stationary energy sector includes emissions from energy used in building systems, snowmelt systems, outdoor lighting, and other energy use tied to stationary sources. This sector also includes emissions generated from the leakage of natural gas during the distribution process. Electricity use produces more than half of the emissions from stationary energy, with residential electricity use making up 32 percent of the pie and commercial electricity use making up 28 percent. Commercial buildings generate 20 percent of stationary emissions from natural gas use, with natural gas use in residential buildings generating 19 percent. See Figure 4.

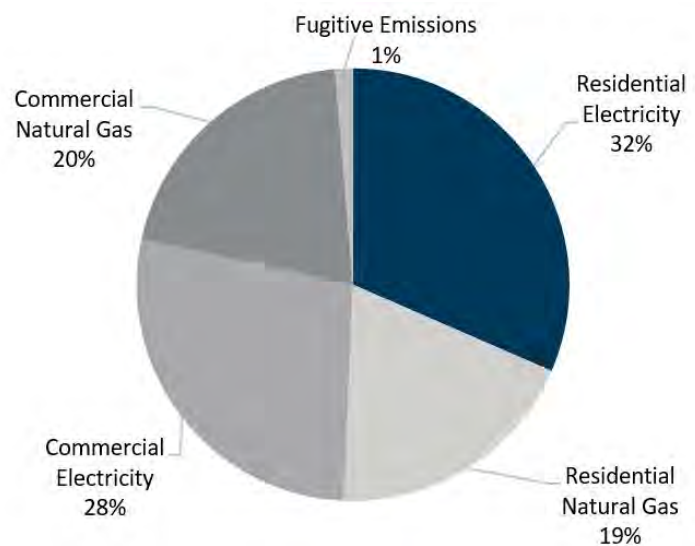


Figure 4. Mountain Village's 2019 building emissions detail.

GPC does not allow communities to subtract negative emissions from the purchase of renewable energy credits (RECs) or other emission offsets in their official inventory, but many communities include information on these offsets or 'avoided emissions' to understand the impact of local decisions.

<sup>7</sup> Based on data provided by Visit Telluride, the average daily population in Mountain Village in 2019 for residents plus visitors was estimated to be 5,693 people.

<sup>8</sup> Based on Lotus' work and research. Boulder's (CO) per capita emissions value is 13.7 mt CO<sub>2</sub>e (2019), Denver's (CO) is 11.6 (2019), Fort Collins (CO) is 12 (2017).

In 2019, 1,880 mt CO<sub>2</sub>e, (representing just over 2.5 percent of the Town's total emissions) were avoided by the purchase of RECs, community solar subscriptions, or through on-site solar installations in the community. SMPA owns the RECs associated with any on-site solar in Mountain Village, and some customers in the community additionally choose to purchase RECs to offset the impact of their energy use. RECs owned by SMPA are included in the calculation of Mountain Village's electricity emission factor. If the use of on-site solar were to increase in Mountain Village, one could assume that the utility would continue to retain the RECs associated with this renewable production, and therefore, increased solar would contribute to a lower emissions factor (i.e., carbon intensity) of the electricity provided by SMPA, leading to lower emissions from electricity use in future inventories.

As the vast majority (92 percent) of Mountain Village's emissions are generated from energy use in buildings (refer to Figure 4), addressing and reducing energy use powering building systems with less carbon-intensive energy resources will be the Town's most effective approach for reducing community-wide GHG emissions.

## TRANSPORTATION EMISSIONS

Mountain Village's transportation system is unique among many of its peers. Due to its small size, the Town experiences less vehicular on-road activity that may be typical of other Colorado communities. In addition to emissions produced from on-road vehicular gasoline and diesel consumption, and electric vehicles (which together comprise over 66 percent of all transportation emissions), the Town operates a public transportation gondola system in collaboration with nearby Telluride. The gondola provides access to the Town center, the ski areas, and Telluride and is used frequently by residents and visitors. In addition to the gondola system, the Town operates a summer bus line and a Dial-A-Ride shuttle service in the winter and summer seasons; due to their frequency of use by visitors to the community, hotel shuttles were also included in the calculation of emissions from transit. As seen in Figure 5, transit activity comprised nearly 31 percent of all transportation emissions in the community.

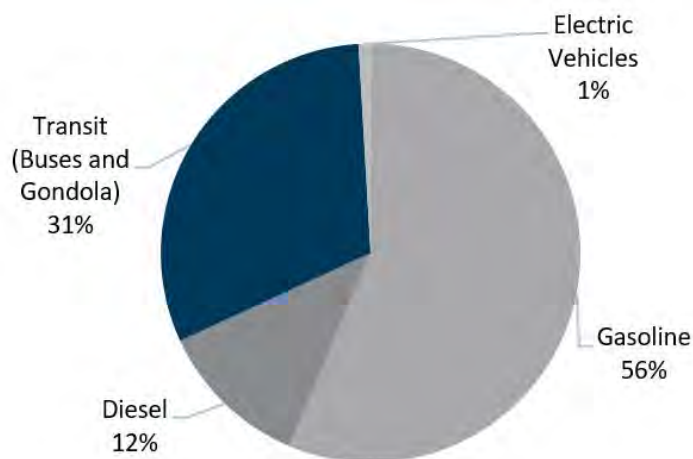


Figure 5. Mountain Village's 2019 transportation emissions detail.

The gondola runs on electricity. The Town purchases RECs and has installed on-site solar systems to offset the energy used for the gondola; these purchases qualify the gondola system as an Environmental Protection Agency (EPA) Green Power Partner.<sup>9</sup>



## WASTE AND WASTEWATER EMISSIONS

In the waste and wastewater sector, which comprises three percent of total community emissions, the majority of emissions are from the collection and disposal of solid waste generated and landfilled by the community, which makes up approximately 96 percent of the total emissions from this sector. Currently, large-scale composting activities are not being tracked in the community; backyard composting is difficult to manage locally due to wildlife issues, but the Town’s composting incentive program does support home composting by providing residents with the opportunity to receive a free home composting unit.

As is the case with renewable energy, the GPC does not allow communities to subtract emissions avoided through recycling in the community; however, these data points are useful for understanding the full impact of a community’s decisions. In 2019, 4,830 mt CO<sub>2</sub>e (representing nearly seven percent of the community’s total emissions) were avoided from recycling activities. These avoided emissions represent a life-cycle impact and include reduced virgin inputs being needed for new materials and reduced landfill disposal.

<sup>9</sup> For more information see <https://townofmountainvillage.com/green-living/energy-use/alternative-energy/>.





## CLIMATE MITIGATION STRATEGIES

Mountain Village has a goal of becoming a carbon-neutral community by 2050, meaning that the community reduces all emissions to the degree possible and offsets emissions that cannot be reduced through the purchase of RECs or through other measures. Understanding the environmental impact of community activities ensures that as the Town continues to address climate action, it does so in a way that makes a significant impact on overall emissions and supports key community values.

Lotus analyzed common and effective emission-reduction strategies being employed by communities of similar size and character to Mountain Village to identify the primary strategies that may be utilized locally to reduce emissions. Following this research, Lotus presented a list of potential solutions and gathered feedback from Town staff and the Green Team Committee to determine which strategies the Town would like to pursue. Lotus also collected feedback from the Green Team Committee on the community values and attributes of living in and visiting Mountain Village that are considered important to maintain and enhance through the Town's climate action work.

## COMMUNITY VALUES FOR CLIMATE ACTION

As community-based emission reduction solutions do not occur in a vacuum, Mountain Village identified the primary community values and attributes that should be enhanced through the Town's emission reduction work. The list to the right represents the values and ideals that Mountain Village's climate action strategies should align with in order to ensure that the entire community benefits from this work. As Mountain Village takes the next steps to identify specific

### MOUNTAIN VILLAGE'S CLIMATE ACTION VALUES

- Promote fiscal responsibility.
- Enhance the quality of life for residents and visitors.
- Support a circular economy and equitable, higher quality, less impactful products.
- Promote cultural and behavioral change through education and engagement programs.
- Support regional food networks and local food sourcing.
- Enhance equity throughout the community.

implementation steps for the Town’s climate action work, any potential policies and programs should be vetted against this list to ensure that the benefits of the work are not restricted to reducing emissions, but also results in a higher quality of life for the whole community.

## OVERVIEW OF GREENHOUSE GAS REDUCTION STRATEGIES

### BUSINESS-AS-USUAL MODELING RESULTS

In addition to understanding Mountain Village’s current emissions, the Town was also interested in understanding what projected emissions would be based on community growth and a status-quo case scenario from the baseline year of 2010 through 2050. Lotus collected data on past emissions estimates, the anticipated growth of the Mountain Village resident population, and projected emissions factors for electricity to generate an estimate of the change in emissions for the community.

Between 2010 and 2019 Mountain Village reduced its emissions by seven percent; 2010 emissions were 5,593 mt CO<sub>2</sub>e higher than the 2019 emissions value. This reduction was likely caused by a combination of community programs and less carbon-intensive electricity from SMPA in 2019 as compared to 2010.

Between 2010 and 2050, Mountain Village’s population is anticipated to grow by 184 percent,<sup>10</sup> and under a status-quo case scenario, population growth will cause higher emissions from the building energy, transportation, and waste sectors. The growth in emissions from each sector will be somewhat balanced by fewer emissions coming from electricity use; this is based on announcements from Tri-State, SMPA’s wholesale power provider, regarding a goal that the generation utility provide 70 percent carbon-free electricity by 2030.<sup>11</sup> The result of these impacts is a 2050 emissions value that is approximately 14 percent lower than the 2010 emissions value (77,991 mt CO<sub>2</sub>e in 2010 and 66,991 mt CO<sub>2</sub>e in 2050); see Figure 6.

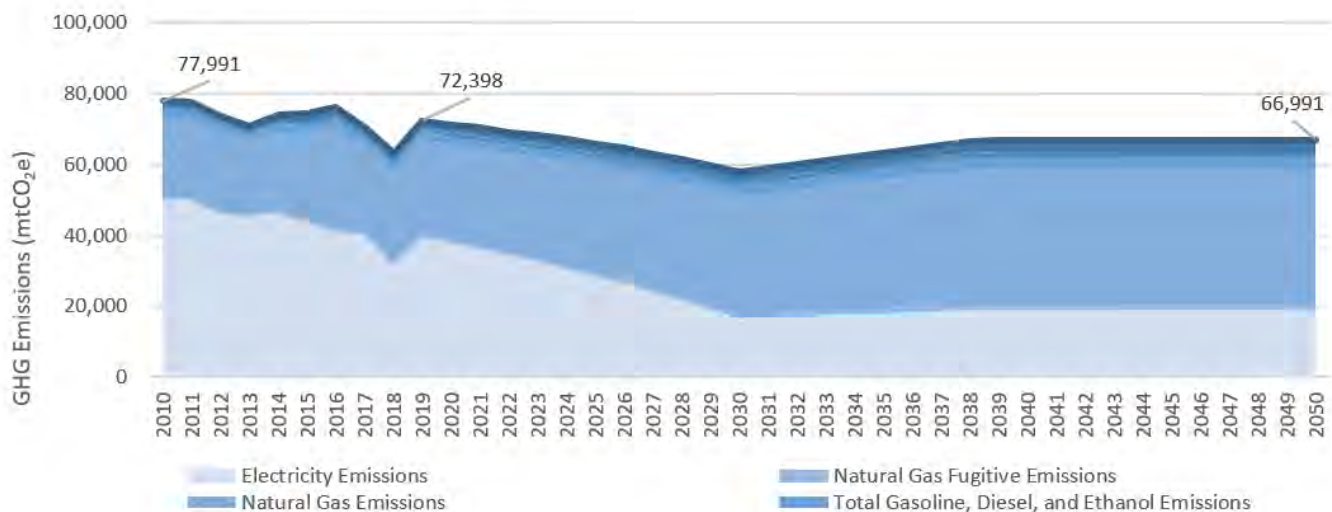


Figure 6. Mountain Village’s status-quo emissions projections to 2050.

<sup>10</sup> Based on anticipated population growth for San Miguel County as provided by the Colorado Department of Local Affairs.

<sup>11</sup> Based on conversations with representatives of Tri-State Energy. For more information please see <https://energynews.us/2020/01/21/west/tri-state-ceo-says-wholesalers-clean-energy-transition-will-pay-dividends/>.

## MOUNTAIN VILLAGE: POISED FOR CLIMATE ACTION

The final list of climate action strategies for Mountain Village was compared against the business-as-usual case scenario to understand the quantitative impact of the Town’s strategies towards achieving the carbon neutrality goal. It is estimated that, if the Town were to successfully implement the strategies using the participation targets applied in the model, Mountain Village will be able to reduce its 2050 emissions by 85 percent from the 2010 baseline, for a 2050 emissions value of approximately 11,644 mt CO<sub>2</sub>e, see Figure 7. If the Town reaches its goal, per capita emissions for residents and visitors in the community will be drop dramatically from 12.7 mt CO<sub>2</sub>e to approximately 1.4 mt CO<sub>2</sub>e.<sup>12</sup>

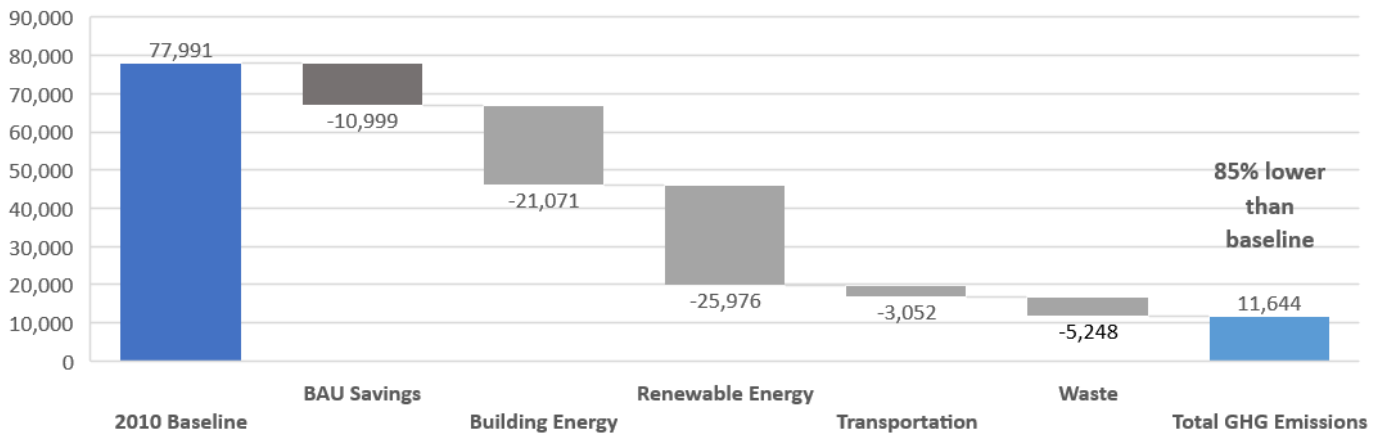


Figure 7. Mountain Village’s emission reductions by sector based on CAP strategies.

The final list of high-level climate action strategies for Mountain Village are outlined on the following pages. Using data on current activities in Mountain Village and on energy use and transportation patterns nationally, Lotus estimated the potential for these strategies to reduce community emissions over the coming years. These strategies present a framework for the Town to follow when determining where and how to invest staff time and resources over the coming years. Discussions with Town staff, the Green Team Committee, and other stakeholders helped identify some of the specific actions that the community can take to convert this plan into action, and an important next step will be for Mountain Village to meet with its community of residents and business owners, local leaders, and regional partners to determine the specific implementation details for ensuring this work is completed.

<sup>12</sup> This assumes a 2050 emissions value of 11,644 mt CO<sub>2</sub>e and a 2050 population of 8,126, which is the Town’s growth cap.

## TRANSPORTATION STRATEGIES

There are four transportation strategies for Mountain Village to pursue; the combined impact of these strategies is a four percent reduction in emissions from the 2010 baseline in the year 2050. See Table 1.

Transportation Strategy	Suggested Supporting Action	Reduction from 2010 Baseline
T1. Reduce single-occupancy vehicle travel through increased biking, walking, and transit use.	T1a. Expand multimodal connectivity.	1%
	T1b. Expand transit-oriented development throughout the community.	
	T1c. Accelerate the development of walkable/bikeable networks.	
T2. Support equitable electric vehicle adoption.	T2a. Increase the presence of electric vehicle chargers.	3%
	T2b. Transition school buses to use alternative energy sources (i.e., electricity, CNG).	
	T2c. Promote the expansion of EVs in the community.	
T3. Switch government fleet vehicles to electric vehicles.	T3a. Transition municipal fleet to an electric vehicle fleet.	N/A*
	T3b. Consider low-emissions vehicle alternatives for the municipal fleet and equipment where electric vehicles are not a viable option.	
T4. Educate the public on behavior changes.	T4a. Develop a targeted branding and education campaign around reducing single-occupancy vehicle use and investing in EVs.	N/A*

\*Strategies for which the emissions reduction potential is assumed to be minimal were not included in the modeling effort.

Table 1: Transportation strategies for Mountain Village.

The greatest opportunity to reduce transportation emissions comes from support a transition to electric vehicles (EVs) across the community, followed by reducing travel in single-occupancy vehicles. EVs are vehicles that use an electric motor rather than an internal combustion engine (ICE) to power the vehicles. It should be noted that EVs still do produce emissions associated with the electricity that powers them; however, even at current and projected electricity emissions levels for SMPA, the transition to electric vehicles will reduce the community’s emissions by three percent by 2050 (assuming 70 percent of vehicles on the road in 2050 are EVs).

If Mountain Village were to be powered by 100 percent renewable energy or offset the community’s total electricity use with the purchase of RECs, the emissions savings could be even greater. Mountain Village can encourage greater adoption of EVs in the community through expanding the number and availability of charging stations (currently there are five charging stations); promoting programs and events that expand EV awareness and incentives (such as ride-and-drive events or group bulk purchasing programs for the community); greening the municipal fleet vehicles when they come up in the replacement cycle; and working with local special districts, including the



school district, to help them transition to cleaner and less-polluting vehicles. A crucial component of supporting EV adoption is ensuring there is a local market of service providers to support vehicle sales and maintenance; Mountain Village will benefit from supporting the development of a regional EV market that can provide these services.

Mountain Village has a strong gondola-based transit system that is used for transit between the Town and the ski area and surrounding communities. By encouraging or requiring all new developments and growth in the community to be centered with easy access to transit and multi-modal connectivity options, and by enhancing signage and wayfinding for multimodal connections, the Town can help its community to reduce their time spent



traveling alone in a car while prioritizing active transportation alternatives. This effort should include a cohesive branding campaign that educates residents and visitors about transportation options in the community, including the ease of using public transit and bike trails, enhanced route marking and wayfinding for multimodal travel, the availability of EV charging infrastructure, and cost savings and air quality benefits that come with replacing ICE vehicles with EVs.

## **BUILDING ENERGY STRATEGIES**

Mountain Village has identified four strategies to reduce emissions from the building energy sector; see Table 2. Combined, these strategies are anticipated to reduce the community's GHG emissions by approximately 27 percent from the 2010 baseline between now and 2050.

The Town should continue to work with SMPA and local partner agencies to market and expand the available energy efficiency programs for commercial and residential buildings. **Requiring or incentivizing building energy benchmarking will ensure that community members better understand and are aware of how their buildings use energy and where there may be opportunities to reduce that energy use.** On the commercial side, policies that require or incentivize building retro-commissioning will ensure that building systems continue to operate efficiently and effectively and may also result in energy cost savings for building owners and managers.

**Based on conversations with individuals familiar with the Town's current energy programs and codes, continuing to adopt the most recent International Energy Conservation Code (IECC) when it is released and addressing updates in the Town's Renewable Energy Mitigation Program (REMP), which addresses exterior energy use, will be important measures to make sure that the Town continues to reduce building energy use across the community.** The impact of the strategies aimed at promoting and expanding energy efficiency programs for both the commercial and residential sectors is likely to reduce the Town's 2050 emissions by 10 percent from the 2010 baseline.

Building Energy Strategy	Suggested Supporting Action	Reduction from 2010 Baseline
B1. Promote and expand residential energy efficiency programs.	B1a. Implement a residential benchmarking program.	4%
	B1b. Accelerate low-to-moderate-income energy efficiency retrofit programs.	
	B1c. Provide mechanisms to encourage the reduction of energy in moderate-to-high-income households.	
	B1d. Address needed updates in building codes and the REMP program to address snowmelt systems and the calculation of solar offsets.	
B2. Promote and expand a commercial energy efficiency programs.	B2a. Implement a commercial benchmarking program.	6%
	B2b. Provide mechanisms to encourage the reduction of energy in commercial buildings.	
	B2c. Require and incentivize commercial building retro-commissioning.	
	B2d. Address needed updates in building codes and the REMP program to address snowmelt systems and the calculation of solar offsets.	
B3. Promote fuel switching (i.e., electrification programs for buildings).	B3a. Work with building owners to convert commercial and residential buildings from natural gas systems to electric systems and offset electricity use with an on-site solar system or RECs.	18%
B4. Reduce energy usage in municipal buildings.	B4a. Reduce energy use in municipally owned buildings.	N/A*
	B4b. Build net-zero energy municipal buildings.	

\*Strategies for which the emissions reduction potential is assumed to be minimal were not included in the modeling effort.

Table 2: Building energy strategies for Mountain Village.

The Town has been actively working to reduce energy use in municipal buildings over the last several years; because municipal energy use is a small portion of overall community energy use, the strategy to reduce energy use in municipal buildings was not included in the GHG emissions reduction model. Regardless, this work should continue to ensure the Town continues to lead by example.



While the emissions associated with electricity use in the community at this point are relatively high, as Tri-State works towards its carbon-reduction goals electricity will become less carbon intensive over the years. Based on modeled projections, Tri-State’s emission factor is expected to decrease between 2019 and 2030; by 2022, the emissions factor is expected to be so low that the use of electricity for heating and water heating systems will result in fewer emissions than using

natural gas for the same purpose. As such, Mountain Village is encouraged to develop programs and incentives that will result in fuel switching in buildings (i.e., transitioning to electrical heating and water heating where applicable).

## RENEWABLE ENERGY STRATEGIES

There are two high-level strategies for Mountain Village to increase the share of energy in the community that is low-carbon and renewably sourced; see Table 3. When leveraged on top of other strategies already referenced in the transportation and building sectors (including increasing electric vehicles, reducing energy use in buildings, and fuel switching), the renewable energy strategies are estimated to reduce 2050 emissions by 40 percent below the 2010 baseline.

Renewable Energy Strategy	Suggested Supporting Action	Reduction from 2010 Baseline
R1. Implement policies and programs that support comprehensive renewable energy growth for the community.	R1a. Work with SMPA to identify opportunities to enhance the number of renewables on the cooperative utility’s grid, including through community solar.	33%
	R1b. Provide mechanisms (e.g. rebates, education, community solar) to encourage adoption of solar in all sectors.	
	R1c. Continue to source renewable electricity for municipal operations.	
	R1d. Explore the feasibility and applicability of other renewable energy technologies that would be productive in the region.	
	R1e. Encourage greater participation in SMPA’s Totally Green program through education and incentives.	
R2. Support policies to advance a clean energy agenda in the state.	R2a. Actively engage in efforts to advance clean energy in Colorado through participation in regional organizations and in statewide legislative work.	N/A*

\*Strategies for which the emissions reduction potential is assumed to be minimal were not included in the modeling effort.

Table 3: Renewable energy strategies for Mountain Village.

Successfully achieving the significant reduction in emissions projected with renewable energy growth will require a concerted effort on the part of the Town and in collaboration with local organizations and SMPA to enhance programs and benefits associated with installing renewable energy or acquiring RECs. Mountain Village may benefit from working with SMPA to enhance the amount of renewables on the cooperative’s grid up to SMPA’s contractual limit. Currently, SMPA has met the five percent self-generation limit imposed by Tri-State; however, per Tri-State’s current rules, SMPA can produce an additional two percent of self-generation via community solar projects, if desired. Mountain Village should explore the development of a community solar garden that would provide power and potential cost savings to Town residents and businesses. Additionally, Mountain Village can develop programs to ease access to solar in the community by making it easier and cheaper to permit systems and by providing education, rebates, and incentives (such as a bulk purchase program).

The Town already powers the gondola system with on-site solar and the purchase of RECs and could further look to install solar and/or purchase RECs to offset use at other municipal buildings as well. SMPA's Totally Green program offers customers the opportunity to invest in renewable energy through a voluntary



per-kilowatt hour adjustment on their bill; the Town can help to promote this program and could consider other ways to incentivize residents and businesses to use it.

There is interest throughout the community in exploring other renewable energy technologies outside of solar and conducting a feasibility study on the potential for solar, wind energy, biomass, and other renewable technologies to be utilized in Mountain Village may be worthwhile. Outside of direct investment in renewable energy and offsets, Mountain Village should enhance its participation in regional and state-wide conversations regarding renewable energy. By working locally with utility and municipal partners and on a state-wide level by joining organizations such as Colorado Communities for Climate Action (CC4CA), Mountain Village can leverage its position to help ensure that statewide policies regarding energy use and supply align with state and local GHG reduction goals.

It should be noted that local generation of renewable energy that offsets community electricity use is always preferable. Therefore, the Town should first prioritize the expansion of rooftop and ground-mounted solar systems, as well as the local development of other feasible renewable energy technologies (based on a feasibility study). Following this, the Town should prioritize the development of a community solar project with SMPA. The utilization of RECs to offset energy use should only come after these first two options for increasing renewables in the community have been exhausted.

## **WASTE STRATEGIES**

Mountain Village and the Town's Green Team Committee are actively interested in reducing the amount of waste generated in the community, and the Town has a goal to be 'zero waste' by 2025. Mountain Village has already taken action to limit the amount of single-use plastic waste in the community, and the Planet Over Plastics Coalition is actively working to help businesses locally transition away from single-use plastics. The Town's waste reduction work includes one high-level strategy with multiple discrete actions to support it; see Table 4. This work is anticipated to reduce the community's GHG emissions by approximately seven percent from the 2010 baseline between now and 2050.

Waste Strategy	Suggested Supporting Action	Reduction from 2010 Baseline
W1. Reduce solid waste and increase diversion.	W1a. Develop policies and expand infrastructures that promote waste minimization and recycling for businesses.	7%
	W1b. Develop a purchase policy for green materials at the Town.	
	W1c. Reuse construction site waste and identify efficient use of materials.	
	W1d. Increase recycling collection.	
	W1e. Develop policies, infrastructure, and incentives for providing commercial composting, focusing on food waste.	
	W1f. Set aside gleaned food for those in need.	
	W1g. Develop businesses that mulch yard waste to increase water retention and soil nutrients.	

Table 4: Waste strategies for Mountain Village.

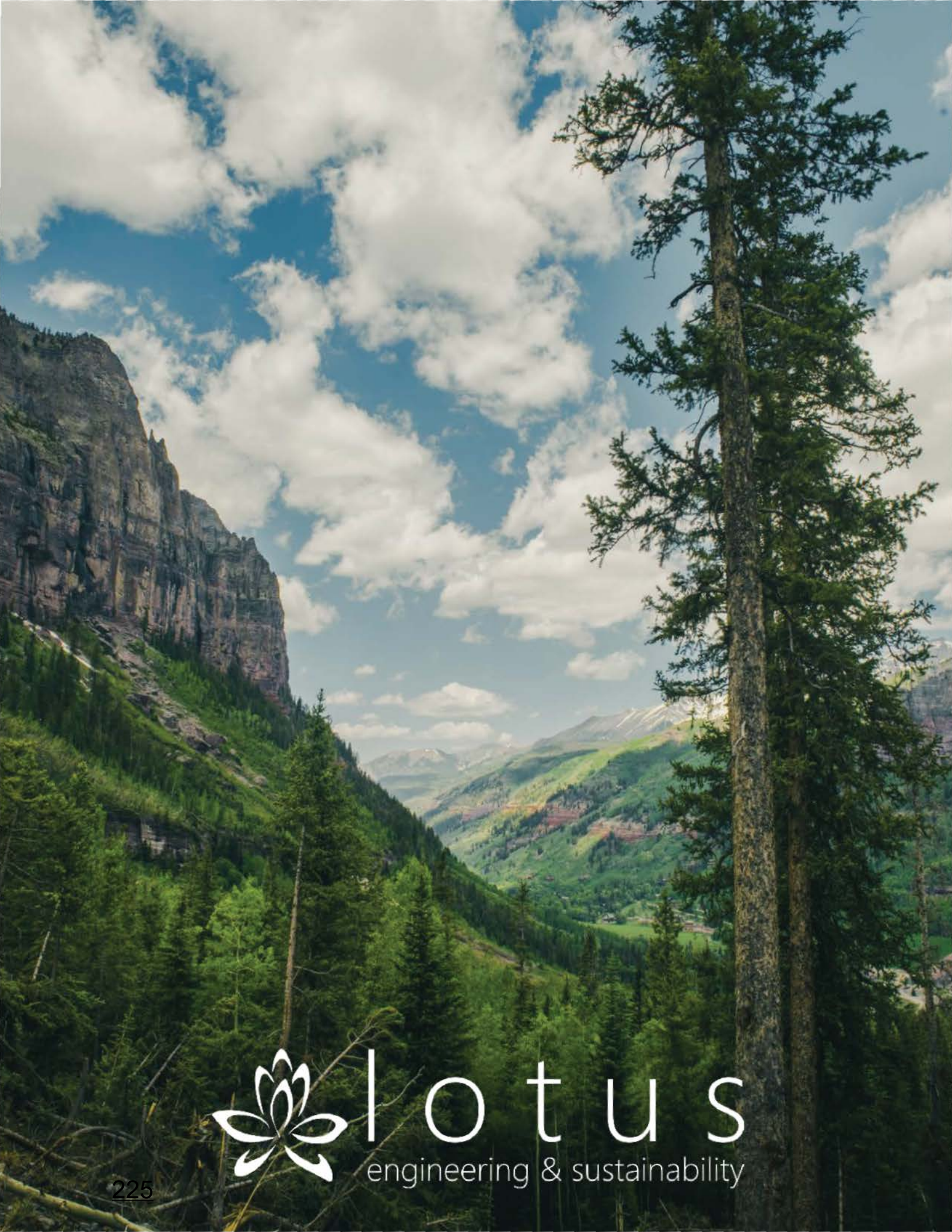
In 2019, the Town’s overall diversion rate for municipal solid waste (MSW) was 42 percent, which is higher than both the state of Colorado and national average (both of which are approximately 35 percent); however, the Town will need to significantly ramp up efforts to increase waste diversion to meet its 2025 goal.

Mountain Village should continue to build off of the Town’s success with waste diversion programs. There is a significant amount of interest in local food within the community, so leveraging this connection to reduce food waste, provide excess food to those in need, and utilize food waste to create compost for local farms and gardens may be a worthwhile investment of staff and Green Team Committee time and resources. By focusing on source reduction (i.e., encouraging people to buy and consume less) and a waste hierarchy that puts reuse and repurposing above recycling, the Town may help to develop a circular economy locally that reduces the consumption of goods and materials locally, creates local markets, jobs, and wealth, and enhances the value of conservation across the community. While the impact on emissions from waste is relatively small compared to building energy use, the subject of waste and reducing waste is one that nearly all community members and visitors can relate to and participate in. This sector offers prime opportunities for engaging the community and telling the story of Mountain Village’s climate action work and how residents and visitors can be involved and support these efforts.



## **CONCLUSION**

As a diverse community in a high alpine environment that sees many tourists pass through, Mountain Village recognizes that by addressing climate change through the implementation of the strategies outlined in this CAP, the community can also enhance the quality of life for all residents and visitors while spurring local innovation. Mountain Village will need to work collaboratively with its local partners, regional organizations, and state and national agencies and entities that are also interested in this work. Through collaboration and strategic implementation of the strategies in this CAP, Mountain Village can achieve its emission reduction goal while ensuring a healthy, equitable, and livable future now and in the years to come.



l o t u s  
engineering & sustainability



## Mountain Village 2018 Greenhouse Gas Inventory Report

Prepared by EcoAction Partners  
for the Town of Mountain Village

November 1, 2019

### Overview:

In 2018, the Town of Mountain Village contracted with EcoAction Partners to create a Mountain Village-specific Greenhouse Gas Inventory. Working from the baseline regional San Miguel and Ouray County GHG Inventory that EcoAction Partners manages and updates annually, EcoAction Partners modified the calculations to focus on Mountain Village specific data from 2017. This inventory was updated this year to create the 2018 results reported here.

### History:

The regional GHG Inventory was initially developed by the University of Colorado at Denver with data collection input from EcoAction Partners. It was funded through a matching grant in which Mountain Village, Telluride, San Miguel County, Ridgway, City of Ouray and Ouray County each contributed \$1000. The calculations are in accordance with ICLEI protocol established by 2010. Since then it has been updated to align with the subsequent "Global Protocol for Community-Scale Greenhouse Gas Emission Inventories".

Mountain Village adopted a goal to reduce overall GHG emissions 20% by 2020, from 2005 baseline levels, however our regional GHG and energy-use baseline began to be tracked in 2010. Thus progress toward this goal is determined based on data from 2010 forward.

### Shared regional resources:

As part of the analysis, Mountain Village desired clear understanding of how GHG emissions associated with shared regional resources were allocated between jurisdictions. Thus, EcoAction Partners created a summary of how these resources have been allocated in the past and coordinated a meeting of representatives from Mountain Village, Telluride, San Miguel County, and Telluride Ski & Golf, to review and discuss allocations for each of these resources. The agreed-upon outcome for each of these are detailed in Appendix A. The resources discussed include:

- Regional airports
- Waste Water Treatment Plant
- Gondola
- Telluride Ski and Golf's utilities including water use
- Festivals
- Transit services



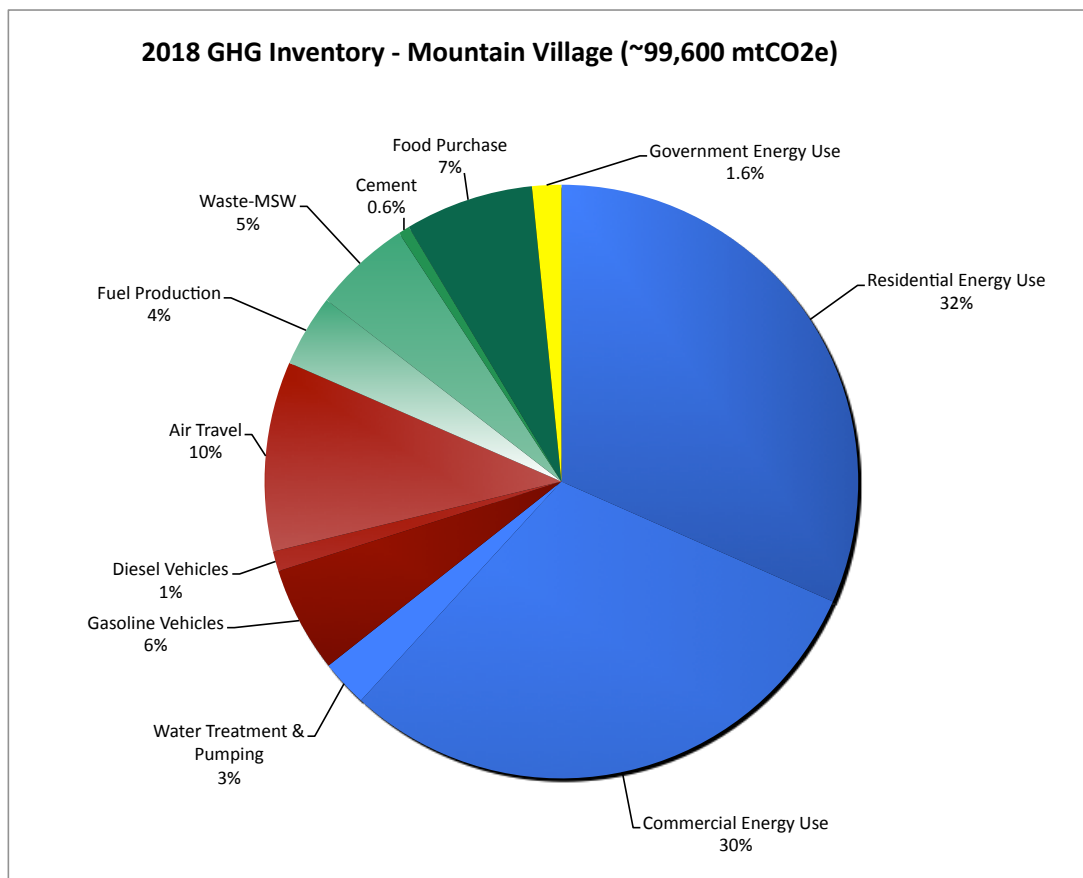
## 2018 Mountain Village GHG Inventory Results

Mountain Village's total GHG emissions for 2018 were approximately 99,600 mtCO<sub>2</sub>e (metric tons of carbon dioxide equivalent). This is an increase of 3.75% over 2017 emissions of 96,000 mtCO<sub>2</sub>e.

### Equivalencies:

- 99,600 mtCO<sub>2</sub>e is equivalent to over 108,885,000 pounds of coal burned.
- 99,600 mtCO<sub>2</sub>e is also equivalent to the energy used by 11,900 average U.S. homes in one year. (MV has 1675 residences)
- 99,600 mtCO<sub>2</sub>e is the amount of carbon that can be sequestered by over 117,000 acres of U.S. forests in a year.

The detailed pie chart below breaks those emissions down per category, explained further below the pie chart. See Appendices for more detailed explanation of allocation per jurisdiction and calculation methodologies.



- Government Energy Use – Electricity and natural gas use by Town of Mountain Village government, including building energy use, streetlights, town plaza snowmelt, and other exterior uses. **Note: Gondola electricity use is 100% offset by SMPA Green Blocks, so Gondola electricity use does not contribute to GHG emissions.** Gondola natural gas use does contribute toward TMV GHG emissions. Government portion of emissions increased from 2017 to 2018 (see Town of Mountain Village 2018 Government Energy Use and Greenhouse Gas Report for details).
- Residential Buildings – electricity and natural gas use for homes, including exterior lighting, snowmelt systems, and patio fireplaces. **Renewable electricity associated with net-metered solar systems, SMPA solar farm purchases, and Green Blocks offsets decrease the emissions associated with residential building emissions.**
- Commercial Buildings– electricity and natural gas use for commercial buildings and other use, including exterior lighting, snowmelt systems, patio fireplaces, and Mountain Village ski area operations.

Renewable electricity associated with net-metered solar systems, SMPA solar farm purchases, and Green Blocks offsets decrease the emissions associated with commercial building emissions.

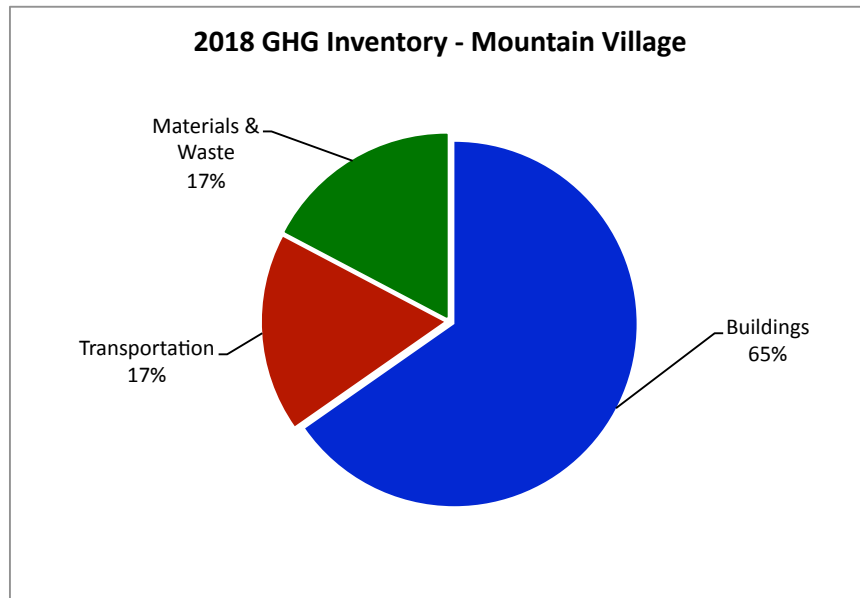
- Water Treatment & Pumping – Electricity used by Town of Mountain Village for treatment and pumping of water. Water electricity emissions increased from 2017 to 2018 (see Town of Mountain Village 2018 Government Energy Use and Greenhouse Gas Report for details on water use).
- Gasoline Vehicles – Emissions from gasoline vehicles
- Diesel Vehicles – Emissions from diesel vehicles
- Air Travel – Emissions associated with airplane fuel & enplanements at Telluride Airport & Montrose Regional Airport. (for allocations, See Appendix A)
- Fuel Production – Processing emissions associated with gasoline and diesel fuel before the fuel enters vehicles
- Waste – Emissions associated with Municipal Solid Waste taken to landfill to decompose
- Cement – Emissions associated with cement for Mountain Village, based on Colorado’s total economy
- Food Purchase – Emissions calculated based on Mountain Village’s total population of census and visitors

#### Additional Items:

These items contribute to reducing MV’s GHG emissions and are incorporated into the overall total calculated value of 99,600 mtCO<sub>2</sub>e:

- **Open Space Carbon Sequestration** – Mountain Village’s dedicated open space is a mixture of grasslands, wetlands and mixed forest. All of these areas sequester carbon and thus reduce GHG emissions by a total of approximately 312 mtCO<sub>2</sub>e, or 0.31% of MV’s total GHG Inventory.
- SMPA Community Solar Farm – Mountain Village’s total participation in the community solar farm is the equivalent of 170 mtCO<sub>2</sub>e, or 0.17% of MV’s total GHG Inventory.
- **Gondola electricity use is 100% offset with SMPA Green Blocks** (~1,872,500 kWh), equivalent to 1500 mt-CO<sub>2</sub>e, or 1.5% of MV’s total GHG Inventory.
- **On-site Net-metered Solar PV Systems** – Government, residential & commercial on-site systems produced over 115,600 kWh in 2018, reducing GHG emissions by approximately 93 mt-CO<sub>2</sub>e, or 0.09% of MV’s total GHG Inventory. Electricity used while these systems were producing electricity does not get metered, so the numbers under-represent the total production of electricity by these systems.
- **Gondola Transportation** – Gondola use reduces vehicle transportation between Telluride and Mountain Village. In a previous study by EcoAction Partners for Mountain Village, it was estimated that gondola usage reduced GHG emissions by approximately 2,700 mt-CO<sub>2</sub>e in 2010, or 2.7% of MV’s total 2017 GHG Inventory.
- Farm-to-Community Program – This program began in 2018 and offset approximately 6 mt-CO<sub>2</sub>e in it’s first year. In 2019, the net total GHG emissions impact from the program is estimated to be a reduction of 16 mt-CO<sub>2</sub>e in GHG emissions. These estimates are conservative. See annual report for this program for other un-calculated benefits.

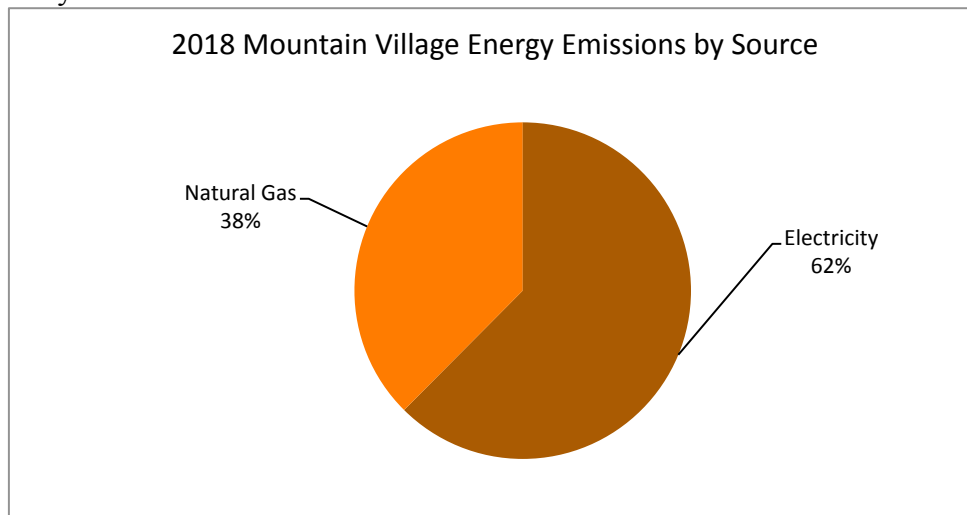
## Simplified pie chart



The pie chart above simplifies the Mountain Village Inventory by showing 3 main categories:

1. Buildings – 65%
2. Transportation – 17%
3. Materials & Waste – 17%

Clearly, building energy consumption is the largest category of GHG emissions. The next pie chart shows just the Building emissions portion of the above pie chart (government, residential, & commercial combined) broken down per utility:



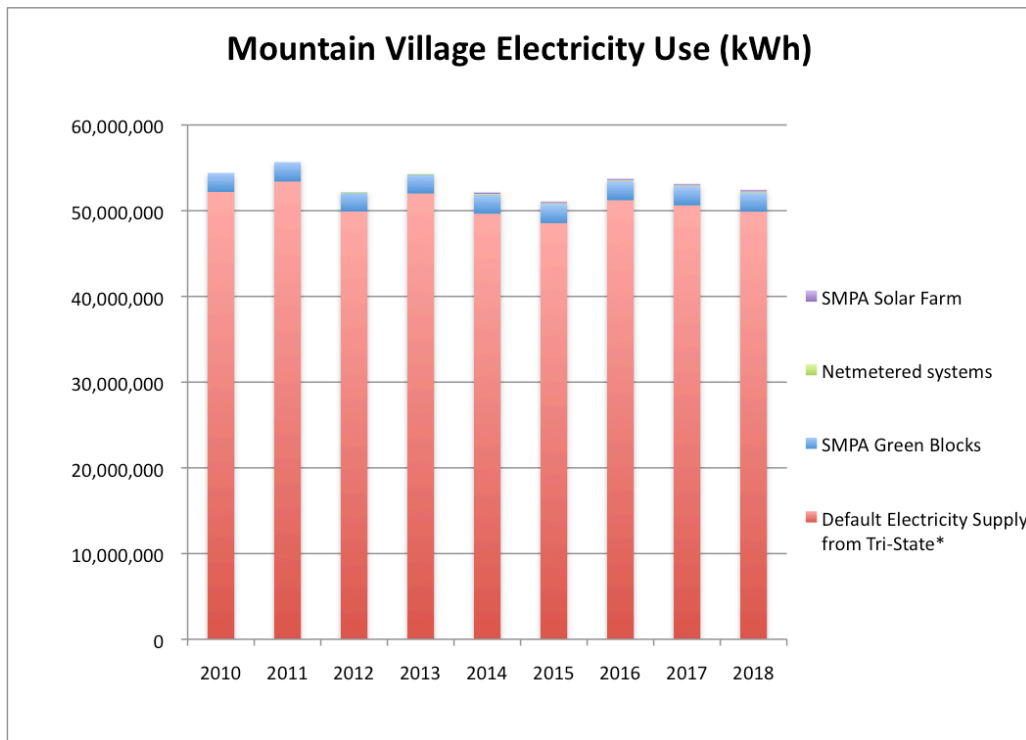
Electricity emissions are impacted by overall usage and the emissions factor, which reflects the amount of renewable energy that is part of our overall electricity mix. This value is provided to SMPA from Tri-State annually and has been steadily decreasing since 2010, from 2.12 to 1.595 lb-CO<sub>2</sub>e/kWh.

Natural gas emissions are also impacted by overall usage and the emissions factor, which is determined how the natural gas is produced. In 2010, Source Gas provided this factor at 11.88 lb-CO<sub>2</sub>e/therm. For 2017 & 2018, the natural gas emissions factor was provided by Black Hills at 11.68 lb-CO<sub>2</sub>e/therm.

Natural gas and electricity data is provided annually from the utility companies, broken down by jurisdiction. It's accurate data that is easy to track and analyze progress toward reduction goals. Mountain Village's

electricity and natural gas usage have been tracked since 2010, with analysis presented annually by EcoAction Partners to Town Council. The following graphs show electricity and natural gas use from 2010 to 2018.

**Mountain Village Electricity Use:**



*\*Default Electricity Supply from Tri-State Generation & Transmission Association, Inc. - Tri-State reports that 30% of this comes from a renewable energy source.*

Electricity use associated with MV’s SMPA community solar farm purchases, net-metered solar systems, and SMPA Green Blocks offsets do not contribute to MV’s GHG emissions. Electricity emissions in the pie charts are associated with Mountain Village’s “Default Electricity Supply from Tri-State” which is approximately 50,000,000 kilowatt-hours annually. Notable, is that overall use has decreased by 3.6% since 2010, despite an increase in people, buildings, and overall economy. Continuing to increase renewable energy in our electricity mix and decrease electricity use through conservation and efficiency will continue to reduce electricity-related emissions.

**Mountain Village Electricity GHG emissions:**

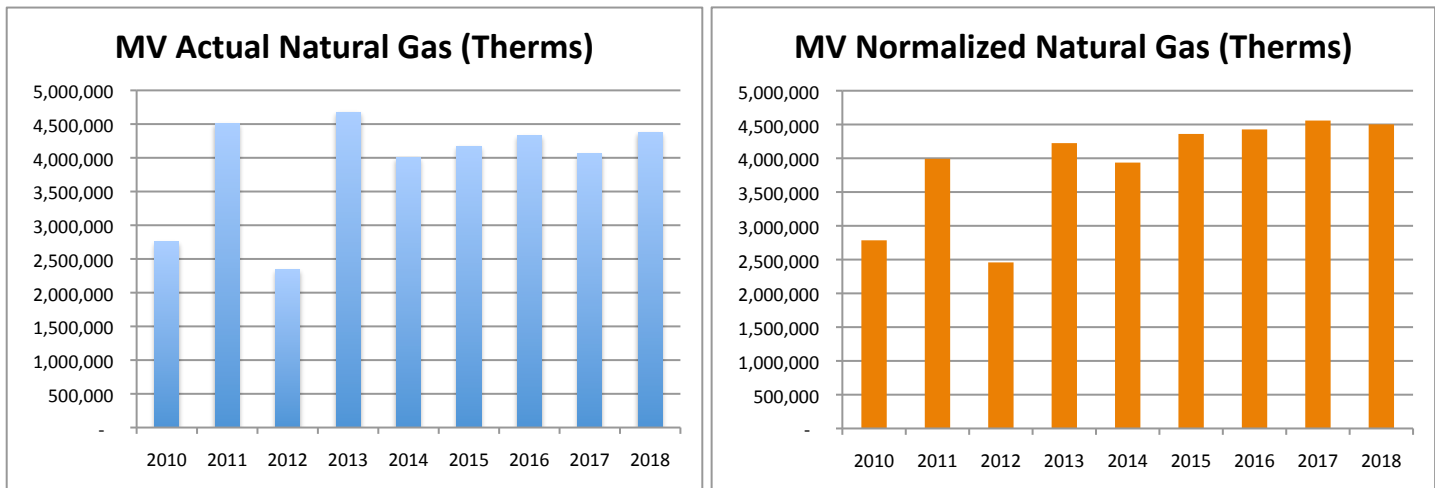
GHG emissions associated with the “Default Electricity” consumed is calculated using the Tri-State emissions factor for each year.

2010 – 52,191,724 kWh produced 50,300 mtCO<sub>2</sub>e

2018 – 49,885,933 kWh produced 39,300 mtCO<sub>2</sub>e

Thus, since 2010, MV has seen a 21.9% reduction in emissions from electricity use.

## Mountain Village Natural Gas Use:



\*In 2010, some of MV's natural gas use was assigned by Source Gas to San Miguel County, resulting in an inaccurate baseline for Mountain Village. Thus, 2011 data is used for baseline purposes.

\*In 2018, Black Hills Energy updated their database to improve location accuracy of meters. As a result, some meters previously included within Mountain Village boundaries have been reallocated to San Miguel County.

Actual natural gas use is greatly influenced by temperature and snowfall from year to year, to a greater extent than electricity use. Thus actual natural gas use is reviewed with respect to these weather variations. Normalizing natural gas use is a calculation process performed to adjust for temperature variations. It does not adjust for snowfall.

In general, natural gas use has been increasing, when adjusted to account for varying winter temperatures. This increase is in line with increased building and snowmelt square footage being constructed in Mountain Village. Overall natural gas use can be reduced through efficiency and conservation measures, addressing new construction through energy efficient building codes and existing buildings through implementing Energy Conservation Measures, such as weatherization, increasing insulation, and improving tuning mechanical heating systems and controls.

### Mountain Village Natural Gas GHG emissions:

To understand progress toward addressing GHG emissions, emissions associated with normalized natural gas have been used to calculate GHG emissions associated with natural gas consumption:

2011 – 4,006,797 therms produced 21,600 mtCO<sub>2</sub>e

2017 – 4,573,998 therms produced 24,400 mtCO<sub>2</sub>e

2018 – 4,502,366 therms produced 24,000 mtCO<sub>2</sub>e

Thus, an 11% increase in natural gas related emissions is seen comparing 2011 to 2017 & 2018.

### **Factors influencing Energy Use & GHG Emissions:**

Multiple variables impact annual use of electricity and the resulting GHG Emissions. These include:

- Population – Census & Visitors
- Economy:
  - New Construction
  - Hotel Occupancy
  - Restaurants & Businesses
- Weather:
  - Winter (& Summer) Temperatures
  - Snowfall
- Emissions factors – Electricity, natural gas & other fuels

Charts tracking these variables from year-to-year follow this report, with further explanation of their influence provided in the annual GHG Inventory presentation given by EcoAction Partners.

### **Per Capita & Comparison Discussion:**

The Mountain Village 2017 GHG Inventory report provided an extensive section covering a discussion regarding per capita analysis and comparisons to other jurisdictions' GHG Inventories. Since overall emissions and inventory results for Mountain Village have not dramatically changed between 2017 and 2018, this section was not recreated for this 2018 report. The 2017 Benchmark comparison table is included again at the end of this report for reference. The wastewater treatment plant benchmark line was revised, as it is not feasible to accurately separate wastewater gallons and visitor population values between Mountain Village and Telluride. The notes column was revised to improve clarity and address town council questions regarding the bases for the benchmark values and reasons for why Mountain Village values are higher than Telluride values.

### **Recommendations for GHG Emissions reductions:**

It is recommended that Mountain Village adopt the new Colorado state goals for GHG emission reductions, and consider adopting a target of carbon neutrality by 2030.

The Regional Sustainability Action Plan (STRATEGY) developed in 2010 by the Sneffels Energy Board is a comprehensive document for San Miguel and Ouray Counties, and all of the jurisdictions within. The STRATEGY is a guide to multi-jurisdictional energy action planning providing a framework to facilitate streamlined, inter-entity collaboration in our region's efforts to effectively manage energy resources, reduce energy costs and meet energy, water, waste and transportation fuel reduction goals. Within it is an extensive list of region-wide and jurisdiction-specific actions for reducing GHG emissions and achieving region-wide sustainability goals. Mountain Village was represented throughout the development of this document by Bob Delves and Deanna Drew. It is available at <http://www.ecoactionpartners.org/sustainability-action-plan>.

This regional plan and the goals within it will be updated during 2020 by the Sneffels Energy Board. Mountain Village council & staff representatives are invited to be a part of this important discussion and planning process. Recommendations from the Green Team and Mountain Village staff will be valuable for the community-specific portion of the plan and will also contribute toward the regional planning process.

Discussions with MV staff and Green Team have resulted in the following list of ideas for MV to reduce community GHG emissions. A comprehensive plan to reduce GHG emissions would also address Transportation, Food, Waste & Consumption areas of the GHG Inventory. See the MV 2018 Town Government Energy Use & Greenhouse Gas Report for further recommendations.

Maximize partnership possibilities with other organizations

#### Renewable Electricity

- Collaborate with SMPA toward increasing local renewable electricity
- Support new Community Solar Farm development & include as an option for REMP
- Promote SMPA Green Blocks & efficiency programs along with MV Incentives

#### Community Programs to address existing homes & buildings

- Continue MV program development & implementation
  - Farm-to-Community Program
  - Composting Incentive Program
  - Incentivize smart controls for snowmelt systems and electric heat tape
  - Incentivize on-site renewable energy systems
  - Consider an incentive program for larger housing units / hotels to install smart energy controls
- Continued participation in EcoAction Partners' regional programs:
  - SMPA IQ Weatherization
  - Green Business Certification Program for Lodging, Restaurants, Retail, & other businesses
  - Green Property Manager Program to address part-time / unoccupied homes
  - Community Composting

#### Building Energy Code Adoption:

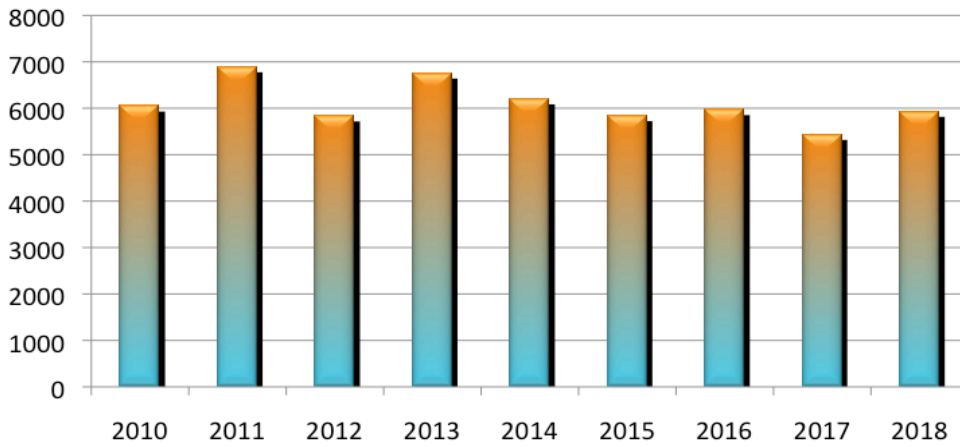
- 2018 IECC with amendments that progress energy efficiency
- Reconsider size categories & HERS scores
- Scale toward Net Zero home as size increases
- Require house electricity offset of 100%, through Green Blocks, on-site renewable energy, or other equivalent
- Consider adding natural gas offset requirement, through Green Blocks, RECs or equivalent
- Incentivize small homes < 3000 SF & net-zero, passive home construction through financial or expedited process
- Require solar panels or solar-ready provisions on all new construction
- Require smart energy control systems on new lodging units and larger residences

#### Renewable Energy Mitigation Program (REMP):

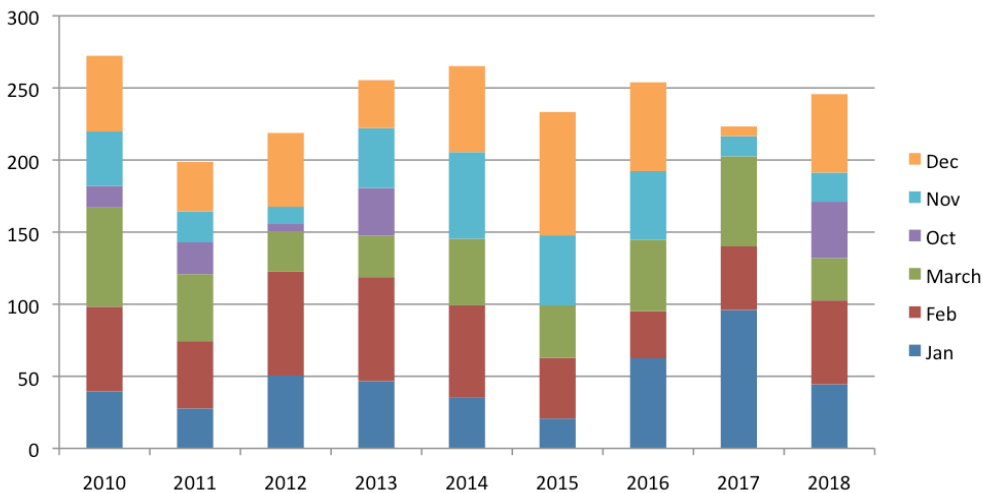
- Update fees to offset carbon to match current costs & solar production values
- Eliminate or reduce free 1000 SF of snowmelt allowed
- Address outdoor fireplaces and infrared heaters
- Continue double-incentive for on-site renewable energy mitigation

## Weather Data - Telluride (HDD\*)

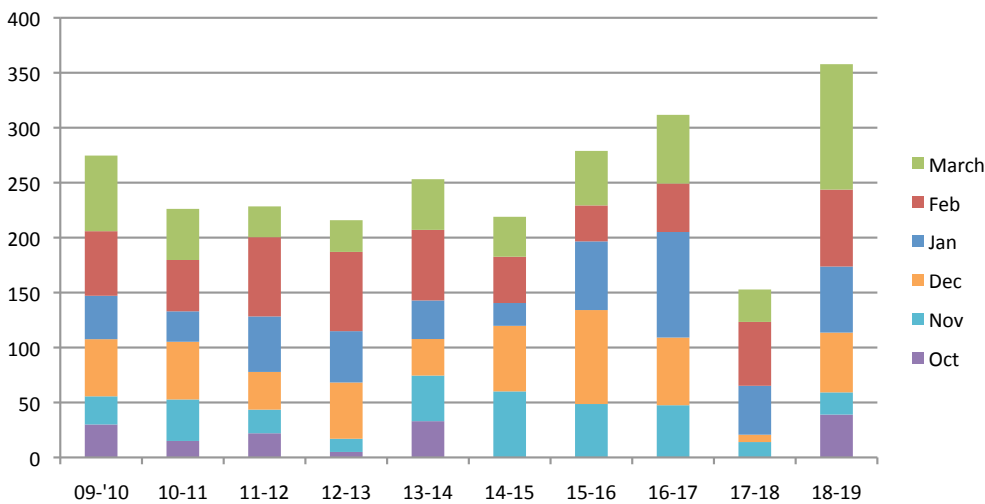
\*total building heat needed annually



## Annual Calendar Snowfall Data (inches)

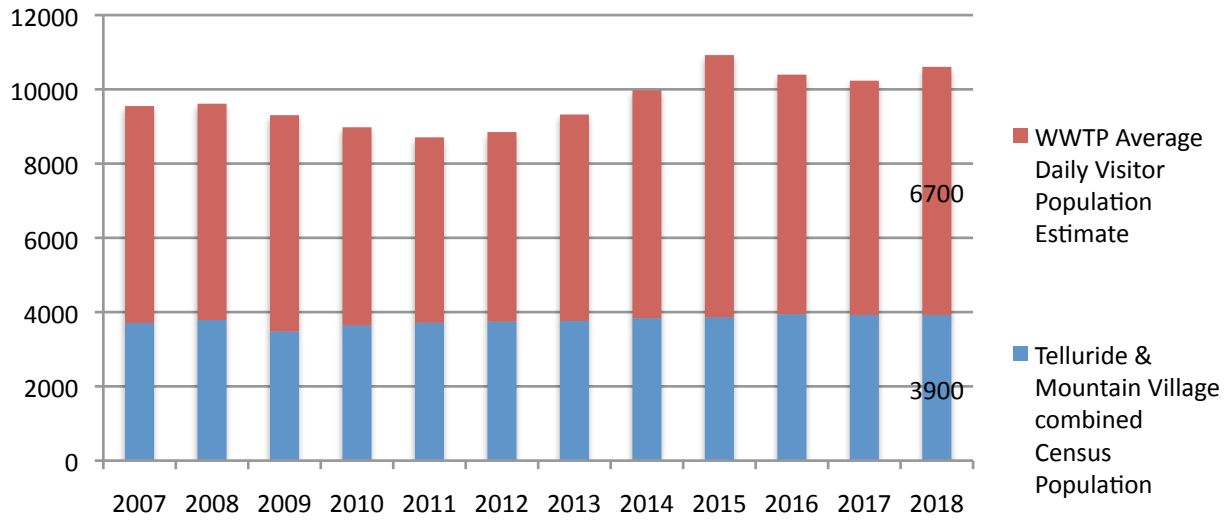


## Seasonal Snowfall Data (inches)





## Telluride & Mountain Village Population



### Conversion Factors Used:

**TriState (SMPA):** 2.12 lb CO<sub>2</sub>e/kWh (pre-2012)      1.96 lbCO<sub>2</sub>d/kWh (2012)      1.93 lbCO<sub>2</sub>e/kWh (2013)  
 1.99 lbCO<sub>2</sub>e/kWh (2014)      1.871 lbCO<sub>2</sub>e/kWh (2015)      1.776 lbCO<sub>2</sub>e/kWh (2016)  
 1.595 lbCO<sub>2</sub>e/kWh (2017)

**Black Hills Energy:** 11.68 lbCO<sub>2</sub>e/therm      **Source Gas (2010-2016):** 11.88 lbCO<sub>2</sub>e/therm

**Gasoline:** 20.02 lbCO<sub>2</sub>e/gallon (tail-pipe emissions only per government GHG protocol)

**Diesel:** 22.44 lb CO<sub>2</sub>e/gallon (tail-pipe emissions only per government GHG protocol)



Local Benchmark Comparison from 2017:

Description of Benchmark	San Miguel County, CO (2017)	Telluride, CO (2017)	Town of Mountain Village, CO (2017)	Aspen, CO (2014)	Mountain Village & Telluride (2017)	Units of measurement	Notes
<b>Total GHG Emissions</b>	<b>244,000</b>	<b>67,500</b>	<b>96,000</b>	<b>394,391</b>	<b>163,500</b>	mtCO2e	
Avg. Res. electricity use	894	728	1268			kWh/household /month	
Avg. Res. Natural gas use	110	73	197			therms/household /month	including snowmelt systems
Avg. Res. Electricity (kWh/sf/yr)	4.70	5.19	5.23			KWh/sf/yr	
Avg. Res. Natural Gas/sq.ft/yr	0.28	0.30	0.36			therms/sf/yr	including snowmelt systems
Avg. Comm/ Public Buildings Energy use intensity	227	335	343			Kbtu/ft <sup>2</sup> /year	
Vehicle Miles per person per day	17.0	27.0	28.0			VMT/person/day	per census population
Water	189	168	266*			gallons/person/day	*not incl snowmaking; see water use chart in government report
Wastewater (this line revised from MV 2018 report)	118				73*	gallons/person/day	*per capita incl visitors & all emissions offset by Telluride government REC purchase
Municipal Solid Waste	6.8	10.0	18.1			lb/person/day	per census population
<b>GHG Emissions per capita</b>	<b>30.2</b>	<b>28.6*</b>	<b>68.4</b>	<b>46.8</b>	<b>41.5</b>	Mt-CO2e/person/year	per census population; *Telluride's GHG value incorporates REC offsets
<b>GHG Emissions per capita + visitors</b>	<b>17.2</b>	<b>12.5*</b>	<b>26.2</b>		<b>17.2</b>	Mt-CO2e/person/year	per capita incl Visitors; *Telluride's value incorporates REC offsets



**Mountain Village GHG Inventory  
Appendix A  
San Miguel County Shared Resources Notes**

**SMC Shared Resources Meeting for GHG Inventories  
Wednesday July 11, 10-12 at WPL Telluride Room  
(Note this document was updated after the meeting with outcomes & findings)**

The aim of this meeting is to reach consensus as to how the GHG emissions associated with each shared resource will be assigned between the Telluride & Mountain Village GHG Inventories. Allocations for Telluride's inventories from 2010-2017 are explained below, along with associated Mountain Village analyses. The SMC inventory includes all jurisdictions (including Telluride & MV) and thus is inclusive of these resources.

Allocation methodologies to consider for each resource:

- Location of utility meters determines how electricity and natural gas values are provided by SMPA and Black Hills Energy
- % of county population
- Is data available to parse resources between communities?
- Allocation of tourist impact to Telluride & Mountain Village versus rest of SMC or greater region?

**Regionally Shared Resources**

Wastewater Treatment Plant – Telluride & MV & SMC subdivisions

*MV: 15% ownership, \$30,000 toward solar PV system, 35% of use*

*Towns working toward Regional Sewer District (~5 years?)*

- Electricity & natural gas: 100% to Telluride
- Biogas emissions (nitrogen & methane) from all 10,000+ visitors: 100% assigned to Telluride
- *Could allocate all of the above based on % of use. Group agreed to continue allocation to Telluride*

\*WasteWater analysis charts (no impact to GHG Inventory emissions)

*35% assigned to MV, 65% assigned to Telluride.*

(For improved Telluride analysis – breakout of SMC subdivision population needed)

\*Food GHG emissions are calculated using WWTP population accounting

*35% assigned to MV*

*65% assigned to Telluride, minus SMC subdivision population of 1035*

Gondola – eliminates vehicle traffic between MV & Telluride

*100% of electricity & offset assigned to MV.*

*Natural gas & diesel use allocated to MV.*

- TMVOA (through TMV electricity bills) purchases Green Blocks to offset electricity use by 100% (in 2017 offset was over by 30,000 kWh & adjusted by TMVOA for 2018 onward), so electricity use does not show up in GHG pie.

Telluride Ski & Golf – operations in MV, Telluride, & County land



*electricity & natural gas allocated per meter location  
(provided this way by SMPA & Black Hills Energy for all regional utility use)*

- TSG operations include:
  - Office space & Businesses in MV core
  - The Peaks & other lodging
  - On-mountain operations
  - Conference Center
  - Telluride - Base of Gondola & Lift 7 operations
- *Could ask for TSG assistance in separating utility bills based on location of service, to reassign emissions accordingly*

Regional airports – serve region

- Telluride airport: 100% allocated to SMC, divided 50/50 between Telluride & MV
- 65% of Montrose airport to San Miguel County – group agreed to split 50/50 between Telluride & MV

Vehicle Transportation – data provided per county

*Emissions assigned as % population of SMC*

- Vehicle registration data & CDOT studies are basis for current Inventory
- Transit Services (some shared among jurisdictions)
- *Traffic count data for Telluride & MV would provide better data specific to community driving, but wouldn't account for distance of travel to each town*

Telluride Festivals – all 3 governments resources utilized

*Electricity & water use tied to Telluride Town Park*

- Located in Telluride Town Park
- Gondola used
- Camping in outlying areas, with school bus transportation
- People travel to region for festivals
- Benefits all businesses

Mountain Village Sunset Series – MV resources

- Located in Mountain Village
- Gondola used
- Regional benefit

Others – serve region, allocated by location

- Wilkinson Public Library - Telluride
- Telluride Medical Center – Telluride
- Telluride School District – Telluride
- Telluride Mountain School - SMC

### **Data Gaps**

Trash & Recycling –

- Bruin provides data per jurisdiction. Has not provided for 2017. Telluride fined Bruin for lack of 2016 & 2017 data. Bruin data is only part of the waste picture.



- Waste Management – Private company, data not available. Could be requested through jurisdiction contracts, similar to MV’s contract with Waste Management.
- 2017 Regional & SMC Inventories – data from EcoAction Partner’s Regional Waste Diversion Study. 2015 data trash & recycling per jurisdiction

Transportation –

- Region 10 study data not applicable. It focuses on gaps in transit services.
- CDOT data tracks highway travel only, not all roads.
- Registered vehicles in counties relies upon average CO annual mileage.
- Off-Road vehicle use is increasing, but not accounted for.

Affordable Housing –

- Regional impacts on transit studies & transportation emissions
- GHG calculation could be done to compare impacts of reducing commute mileage for local employees

Food -

- Population-based calculation, including visitors. Telluride is based on 65% of WWTP, minus estimated SMC subdivision population served by WWTP (~1035). Mountain Village would be 35% of WWTP population.
- A food study would be helpful for more accurate food emissions & tracking reduction associated with farmers markets & programs.

Propane data –

- Estimate from 2010
- Private companies, updated data not currently available



## Mountain Village GHG Inventory Appendix B Bases for GHG Inventory Calculations

### Carbon Emissions Footprint Calculator for Cities™

Copyright (c) 2011, Regents of the University of Colorado.

*The workbook is provided to facilitate future updates to Ouray and San Miguel's Greenhouse Gas (GHG) Emissions Inventory. This inventory was completed for 2010 based on ICLEI/WRI protocols and the Demand-Centered Hybrid Life Cycle Analysis methodology (Ramaswami et al., 2008 - see Resource 3). EcoAction Partners uses the workbook to update our regional GHG Emissions Inventory annually.*

#### General data:

Census Population – obtained annually from the Colorado DOLA website

Visitor Population

- SMC visitor values are calculated using the Telluride & Mountain Village Wastewater Treatment Plant BOD data.
- Ouray County visitor estimates are obtained from the visitor centers in Ridgway & Ouray

# of Households, SF of commercial & residential buildings – these values are not used in overall GHG emissions calculations, but are collected for other benchmarking purposes. The Ouray County & San Miguel County Assessors offices provide this data.

#### Energy (blue):

##### **Residential & Commercial Building Energy Use:**

Electricity

- SMPA provides data annually per community for residential, commercial & irrigation (provided in 1<sup>st</sup> quarter for previous year). Data is categorized as non-renewable sales, Green Blocks sales, SMPA community solar farm production, & net-metered system production.
- Tri-State emissions factor - provided to SMPA annually based on Tri-State's total mix of electricity sources (provided late in year for the previous year, thus GHG Inventory value is a year behind when presented to governments, but gets updated during the following year.)

Natural Gas

- Black Hills Energy Corporation (previously SourceGas) provides data annually – per community for residential, commercial & irrigation (provided in 1<sup>st</sup> quarter for previous year).
- Emissions factor – In 2010, Source Gas provided this factor and in 2017, Black Hills Energy Corporation provided the BHE value. Inventories from this transition onward utilize this Black Hills emissions factor.

Propane

- based on initial 2010 estimate from regional propane companies, who are not obligated to release information and have not provided data since.
- Emissions factor – LGOP default factor from 2010



### **Government Energy Use:**

Government electricity & natural gas use – provided annually by governments: utility bill data, Green Blocks purchases, renewable system production, REC purchases

Water / Wastewater Treatment Electricity & Natural Gas - provided annually by governments from utility bills

### **Transit (red):**

#### **Vehicle Transportation:**

*Transportation tail-pipe emissions are calculated using total Vehicle Miles Traveled (VMT), which is derived using two different methods - vehicle registration and average daily traffic. VMT is divided by average regional vehicle fleet fuel economy to calculate fuel consumption, which is used to determine GHG emissions from surface transportation. The Colorado Department of Public Health and Environment (CDPHE) conducts on-road vehicle surveys to characterize the Colorado vehicle mix (95% gasoline, 5% diesel).*

#### Vehicle Registration Method:

- # Vehicles registered in San Miguel & Ouray Counties updated annually
- Vehicle Miles Travelled (VMT) estimate per vehicle / year, per EPA – 12,000

#### Average Daily Traffic Method:

- Average Daily traffic counts of Vehicle Miles Travelled (VMT) per county per Colorado Department of Transportation (CDOT) studies (2009), based on 342 working days/year

#### Gasoline (95% per CDPHE)

- 20.1 average MPG per CDPHE (2010)

#### Diesel (5% per CDPHE)

- 6.3 average MPG per CDPHE (2010)

#### **Airline Transport:**

- Annual aircraft fuel (jet fuel and aviation gasoline) used is provided annually from the Telluride Airport and the Montrose Regional Airport (65% of passengers travel to OC & SMC).
- Emissions factors used are from the Department of Energy (DOE).
- Total number of enplanements (passengers) is also tracked to obtain emissions/person.

**Emissions** values for all fuels are sourced from The Carbon Registry, local government protocol, September 2008.

### **Materials and embodied energy (transboundary reporting):**

*This section will count all the GHG emissions associated with producing and transporting key materials to OC & SMC, including food, cement, and fuel. Just like electricity, these materials are produced outside the boundaries of the community but are essential to community life. WRI and ICLEI are continuously updating their guidelines on how to include these trans-boundary emissions, termed "Scope 3 Emissions."*



#### Food:

This calculation was originally based on 2005 BLS Economic Census data for 2009\$ for average annual household dollars spent on food. Recently, due to the relatively large percentage of households in the region that are not fully occupied year-round, and the annual influx of visitors that contribute to our regional food carbon footprint, all GHG Inventories (2010-2016) were converted in 2017 to use the average food carbon footprint for annual mtCO<sub>2</sub>e/person found in industry studies published online. This carbon footprint value is used with the regional visitor data (vs census) to calculate our annual food-related emissions.

#### Waste & Recycling: calculated using EPA WARM methodology

- We have 2 main waste haulers for the region.
- Bruin provides annually updated data for volumes of waste and recycling collected throughout the region.
- Waste Management provided total data in 2010 for collection in Montrose, Delta, San Miguel & Ouray Counties, but has not provided updated data since.
- The Sneffels Waste Diversion Planning Project was completed in December 2016 by EcoAction Partners. It includes an analysis of total volume of waste and recycling. This is the most accurate regional information currently available. Thus OC & SMC total waste data is based on this study.
- Values from the study are used with WARM\* emissions data to calculate annual waste & recycling emissions.

*\*Waste Reduction Model (WARM) was created by the U.S. Environmental Protection Agency (EPA) to help solid waste planners and organizations estimate greenhouse gas (GHG) emission reductions from several different waste management practices.*

#### Cement:

- Total cement consumed in Colorado in 2007 is multiplied by % of state census population located in OC & SMC.

#### Fuel Production:

- The fuel production emissions factor represents emissions from the production and shipping of fuels. Also known as Wells-to-Pumps, W2P, or WTP Emissions
- The emissions factor for Gasoline, Diesel, & Jet Fuel is multiplied by the total gallons of each fuel used in the region to obtain overall annual emissions.
- WTP Emissions values for all fuels are sourced from the 2017 GREET WTP analysis.

#### Water & Wastewater Treatment Emissions:

Regional governments provide annual gallons of water treated at each plant. These values are utilized with annual census & visitor data, using ICLEI Protocol for Fugitive Emissions from Wastewater equations (10.2, 10.8 and 10.10)\* to calculate annual emissions associated with water and wastewater treatment.

\*See ICLEI Local Government Operations Protocol v 1.0 for more information





## Memo

To: Mountain Village Green Team Committee  
From: Emma Gerona, EcoAction Partners  
Date: September 17<sup>th</sup>, 2020  
Re: EcoAction Partners Updated Proposal; 2021 Programs and Budget

**Mission: EcoAction Partners' mission is to track regional greenhouse gas emissions and coordinate programs that reduce energy use and waste throughout the San Miguel region.**

In response to the MV Green Team discussion on September 8<sup>th</sup> and follow-up discussions with Green Team members and MV staff, EAP has developed a revised 2021 proposal for services. This proposal focuses on EAP's regional services and programs as well as MV staff support, removing MV-specific GHG Inventories from the proposed services and total budget. We are happy to negotiate listed EAP programs, scope and budget for each individual program area to better align with Green Team goals and priorities.

To support the facilitation of our regional program areas in partnership with Mountain Village we are requesting \$18,090. These funds allow EAP to successfully track and analyze regional greenhouse gas emissions and energy use, administer EAP programs throughout the MV community, facilitate Sneffles Energy Board meetings and programming, work towards community and regional composting solutions, as well as other staff and Green Team support. Within our regional services, EAP will update the regional collaborative Sustainability Action Plan by spring 2021 based on analysis and progress over the last 10 years, consider new and relevant strategies and facilitate programs to address regional GHG emission reduction goals.

Our programs prioritize commercial and residential building energy use, which are reported to contribute a large percentage of MV's community GHG emissions (63% EcoAction Partners 2018 Inventory; 93% Lotus Engineering 2019 Inventory). EAP's Green Business Certification and Greenlights programs aim to address this significant source of emissions. Details on each program area are included in the following summary of program information.

A list of specific changes made to EAP's 2021 proposal to the MV Green Team:

- MV-specific Community & Municipal GHG Inventories have been removed.
- MV Staff Support has been added as a budgetary line item to address the request for more regular communication regarding contracted services. This line item was previously categorized under "Regional Energy & Waste Resource" in the 2020 contract.
- MV GHG calculation support is now included within staff support.
- A Green Business rebate line item option was added to address concern regarding MV businesses paying to participate in this fee-for-service program.
  - This rebate option is provided by Telluride and SMC to their businesses and helps incentivize businesses to participate in the program by reducing costs.

We look forward to continuing our work with the Mountain Village community going forward. Thank you very much for your 2020 support, participation in EAP programs, and consideration of EcoAction Partners' 2021 contract renewal request.

### **EAP Regional Programs Provided to MV, Supported by Green Team Funding:**

#### **Sneffles Energy Board:**

**\$1,785**

EcoAction Partners coordinates and facilitates the Sneffles Energy Board in partnership with government and staff representatives from San Miguel and Ouray counties, the towns of Telluride, Mountain Village, Ophir, Norwood, Ridgway, the City of Ouray as well as utility partners, San Miguel Power Association, Black Hills Energy and various citizen group representatives.

These local leaders collaborate on various efforts to accomplish regional sustainability goals including developing and updating a regional sustainability action plan to guide program implementation, and reviewing the progress of GHG emission reductions through the annual update of our regional GHG inventory. This group is currently in the process of updating the regional Sustainability Action Plan that was developed collaboratively in 2010.

Partners of the board meet quarterly to share best practices, design successful regional programs, identify new opportunities and analyze progress made to-date. This regional approach provides a stronger voice to influence political change, greater grant leverage, and the ability to address region specific challenges through enhanced engagement with community stakeholders.

#### **Regional Greenhouse Gas Inventory & Regional Energy Analysis:**

**\$2,040**

Gathering and analyzing our region's Greenhouse Gas emissions data has been an essential service EcoAction Partners has provided to our partners since 2010 when EAP secured a grant for the development of a baseline Greenhouse Gas Inventory for San Miguel and Ouray Counties. This was made possible with the generous support of a \$1000 contribution from each of the six larger governments in the region. This inventory was developed by the University of Colorado, Denver with data collection and assistance from Kim Wheels. Since the initial inventory was created, Wheels has managed and updated our region's GHG data and continued to present GHG information across the region. This data allows EAP and regional stakeholders to make key decisions regarding prioritization of sustainability initiatives that will impact our regions GHG emission reduction goals.

**Greenlights:                    \$1,530 program support + \$1,000 billable municipal contribution**

The Greenlights program exists to promote one of the easiest ways to reduce greenhouse gas emissions: replace incandescent and CFL bulbs with LED bulbs. LED bulbs use on average 85% less electricity than a traditional incandescent bulb. SMPA has historically offered a 50% rebate on LED bulbs, requiring members to purchase bulbs at full price and then submit a reimbursement application. Greenlights seeks to simplify the purchasing process by offering this rebate upfront and contributing an additional 25% off of bulb prices through municipality contributions, without any of the additional paperwork. Since the inception of the project we have sold over 1,330 bulbs in Mountain Village, saving 72,941 kWh and reducing 58.77 Metric tons of CO<sub>2</sub> annually.

This year the program faced some uncertainty due to the COVID-19 pandemic and was reimagined to focus on business-only sales in the contributing jurisdictions. The program launched online on August 1<sup>st</sup> and will be available through the end of the year, as funding allows. EcoAction looks forward to re-expanding the program to the general public in summer 2021.

**Greenlights Statistics:**

2015-2019

Total Bulbs Sold: 17,495

kWh reduced (yearly): 950,000

kWh reduced (bulb lifetime): 18,600,000

Metric Tons CO<sub>2</sub> saved (yearly): 788

Metric Tons CO<sub>2</sub> saved (bulb lifetime): 15,200

Municipal Contributions: \$52,643

SMPA/Tri-State Contributions: \$110,555

**Green Business Certification Program:      \$2,550 program support + \$2,000 billable incentive**

The Green Business Certification program identifies GHG reduction strategies in commercial buildings which contribute 20% of our region's GHG emissions. The program helps save energy while putting dollars back into our businesses' pockets starting with a free customized consultation. These savings through lower energy bills can make the difference needed for a business to stay afloat. We connect participants with rebates, incentives and staff expertise, lowering the time and financial commitment needed to make energy upgrades and increasing the payback period on these investments. As a Black Hills Energy trade ally, EAP works as a contractor to fill gaps in weatherization services not otherwise offered in our region, in addition to leveraging resources from utility incentives, provide information on financing opportunities and offer business grant materials. Estimated GHG savings from future certifications and building energy upgrades are difficult to estimate as the nature of the program depends largely on individual businesses needs and current building state. The program includes an annual re-certification process to continue to actively engage with participating businesses, check-in on progress and understand the impact of completed energy upgrades.

Since the inception of the Green Business Program, EAP has worked with 14 MV businesses. Several MV businesses are currently certified including The Fairmont, Bootdoctors, Mountain Adventure Equipment and others. In 2021, we hope to expand to engage businesses that could greatly benefit from these upgrades and certify or re-certify 10 MV businesses.

The additional request for up to \$2000 in billable incentives helps cover the certification fee, creating further incentive for MV businesses to participate in the program by lowering one possible initial barrier to participation.

**Plastic Film Recycling:      \$510**

This program grew out of the need for plastic film recycling (polyethylene 2 & 4) from the businesses participating in the Green Business Certification Program. Retailers in particular receive all their merchandise individually wrapped in plastic and have complained about the inability to recycle these materials. EcoAction Green Business staff found that TREX uses this recycled material in the production of decking and their TREX furniture and have a drop off location in Montrose. Currently there are 2 public collection boxes located in Mountain Village and several more hosted by individual MV businesses. To-date EcoAction has collected and recycled more than 1,000 pounds of plastic film. This is an immense amount of plastic considering the lightweight nature of plastic film products.

## **EAP Regional Services Provided to MV, Supported by Green Team Funding:**

### **Mountain Village Staff Support:**

**\$2,400**

EcoAction Partners has set aside 40 hours per year of dedicated staff support time to provide clear communications on project status, updates and future goals. We will meet directly with staff to coordinate efforts and provide monthly updates. EAP will present to the Green Team on program and organization updates on a quarterly basis, at which point priorities, goals and objectives can be reviewed and discussed.

### **Farm to Table Program GHG Savings Calculations:**

**\$425**

MV launched the Farm to Table program in 2018 and requested support from EAP to measure the GHG emission impacts of the program. EAP provided this service for the programs 2018 & 2019 years of operation. Due to the termination of EAP's contract for the second half of 2020 we were unable to provide this support this year.

Going forward, EAP is uniquely positioned to support MV government staff with specific GHG calculations that are consistent with the historical calculation methodologies and factors utilized in our regional GHG Inventory.

### **Gondola GHG Offset Calculations:**

**\$850**

In 2010, MV requested EAP to perform a calculation of GHG emissions savings associated with gondola operations reducing vehicle traffic between MV and Telluride. Due to significant changes over the last 10 years, the town has requested that this calculation be updated, to reflect the significant increase of ridership on the gondola over the past 10 years, and other transportation-related changes that would impact the GHG savings results.

**Regional Services:**

**\$3,000**

EAP regional services support our program areas as well as the MV government and Green Team in their emission reduction goals. EAP provides links to MV programs and resources on our website, a monthly newsletter with program and resource information, telephone and in-person support for community members, recycling outreach information, participation and leadership in sustainability related regional events, forums and meetings and support for multi-governmental collaborative sustainability projects. These services help our communities understand and access the resources that are available to them. EAP wants to be readily available to support MV in your commitment to sustainability and GHG emission reduction goals. This funding makes it possible to provide direct support to MV stakeholders including residents, businesses, students, the Green Team and government in reducing energy, saving money and supporting MV in becoming a leader in sustainability work. We are uniquely positioned to due to our collaboration with stakeholders across San Miguel and Ouray Counties to successfully administer sustainability programming. As a central solution for regional stakeholders we make it possible for our governments, businesses, and residents to develop energy and waste reduction projects without needed to be or hire a sustainability expert. EAP provides the professional expertise, collaboration and commitment to succeed in our regional GHG reduction goals. We're able to explore emission reduction strategies from a regional and community level and use our partnerships to expand programs that benefit all our regional jurisdictions

**Total Requested Funding for Regional Programs, Services and Support:**

**\$18,090**

EAP graciously requests \$18,090 for the above program areas, regional services and MV Green Team and staff support. We hope to be able to continue offering these programs to MV residents, assisting with regional goals and GHG tracking and supporting sustainability initiatives withing MV and across the region. As a local organization we understand the intricacies of energy and waste work in a small mountain town and look forward to continuing to collaborate with the MV Green Team on energy reduction efforts and sustainability initiatives.

<b>EcoAction Partners Proposed Contract Services for Mountain Village - 2020</b>	<b>Hours</b>	<b>Cost</b>	<b>% of Total</b>
<b>MV Staff Support &amp; Program Services</b>		<b>\$15,090</b>	<b>83%</b>
MV Staff Support (total of items below)			
- Staff meetings monthly, communication & other efforts as needed to support contract & program implementation	40	\$2,400	13%
- Green Team meeting updates quarterly			
- Special GHG Project Calculations & Consulting (specific items listed below based on requests for 2021)			
a) Farm to Table Program: calculate GHG emissions savings	5	\$425	2%
b) Update Gondola GHG offset calculation from 2010	10	\$850	5%
Regional 2020 GPC-Compliant GHG Inventory & Energy Use Analysis (regional program)	24	\$2,040	11%
- Regional GHG Inventory Update - 2020 data & methodologies			
- 2010 - 2020 summary report & analysis			
- Compare and contrast the 2020 GPC-compliant inventory with the 2019 inventory in a brief memorandum.			
- Regional GHG data sharing on EcoAP website			
Sneffels Energy Board - coordination of meetings, notes, communication (regional program)	30	\$1,785	10%
- regional government elected official & staff representation, SMPA staff, & others collaborating regionally on GHG emissions reduction efforts			
- Implementing updated Sustainability Action Plan			
- Sharing of statewide collaboration & resources to assist with local / regional initiatives & projects			
Regional Energy & Waste Resource Organization for Governments & Community. Regional services include:	50	\$3,000	17%
a) Website with resources for community (including links to MV programs)			
b) Monthly email newsletters			
c) Telephone & in-person support for community members on energy efficiency & renewable energy resources & financial incentives (incl: SMPA, Black Hills, state & federal tax programs, C-PACE, & MV)			
d) Recycling outreach information for region			
e) Participation & leadership in sustainability-related regional events, forums, and meetings			
f) Participation, leadership & research to support multi-government regional collaborative sustainability projects			
Green Business Certification Program	50	\$2,550	14%
- engaging businesses in reducing energy use & GHG emissions			
- financial incentive support for energy efficiency & renewable energy actions			
- engaging property management companies in reducing GHG emissions			
Plastic Film Recycling Program for #4 Plastics	12	\$510	3%
- MV location(s) support, outreach to engage new businesses, volume tracking			
- coordination with MV partners to manage collection and delivery to EAP in Telluride &/or directly to City Market in Montrose			
Greenlights LED Program Implementation	30	\$1,530	8%
<b>Program Funding (allocated directly for participating residents &amp; businesses; utilized amount is invoiced):</b>		<b>\$3,000</b>	
Greenlights Government Contribution for LED bulbs		\$1,000	
Green Business Incentive Program (50% off up to \$200 per business for new or re-certification)		\$2,000	
<b>Mountain Village Green Team Proposed Total: (including Program Funding)</b>		<b>\$18,090</b>	<b>100%</b>

## Proposed Scope of Work

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### TASK 1: DEVELOP A 2020 COMMUNITY-WIDE GPC-COMPLIANT GHG

#### INVENTORY

- Hold a kick-off meeting with the Town. (This meeting may be sufficient to cover all inventories.)
- Update the Lotus-derived data management and emission calculation spreadsheet. Key aspects of this tool include a summary of data sources; emission factors; emission calculations; emission summary.
  - Non-GPC emission sources, such as avoided emissions from recycling and renewable energy, will also be included as information-only items.
- Collect data.
- Conduct a quality assurance/quality control (QA/QC) review on collected data to ensure that it aligns with best practices and industry knowledge.
- Calculate emissions and complete the 2020 GPC-compliant inventory.
- Review all findings with the Town.
- Calculate key metrics for future comparison including, but not limited to, emissions by sector, emissions by source, emissions per capita, energy use intensity by building sector, residential electricity and natural gas use per capita.

#### Deliverables

- Project kickoff meeting.
- 2020 GPC-compliant GHG inventory with inputs and all accompanying data sources, including emails and original reports and spreadsheets.

### TASK 2: DEVELOP A 2020 MUNICIPAL EMISSIONS INVENTORY

- Update the Lotus-derived data management and emission calculation spreadsheet. Key aspects of this tool include a summary of data sources; emission factors; emission calculations; emission summary.
- Collect data.
- Conduct a QA/QC review on collected data to ensure that it aligns with best practices and industry knowledge.
- Complete the 2020 inventory for municipal operations.
- Review all findings with the Town.
- Calculate key metrics for future comparison including, but not limited to, emissions by department (or comparable breakdown as provided by the Town), emissions by source, and emissions per city employee.

#### Deliverables:

- 2020 municipal GHG inventory with inputs and all accompanying data sources, including emails and original reports and spreadsheets.



### TASK 3: DEVELOP A 2020 REGIONAL GPC-COMPLIANT GHG INVENTORY

- Develop a Lotus-derived data management and emission calculation spreadsheet. Key aspects of this tool include a summary of data sources; emission factors; emission calculations; emission summary.
  - Non-GPC emission sources, such as avoided emissions from recycling and renewable energy, will also be included as information-only items.
- Collect data.
- Conduct a quality assurance/quality control (QA/QC) review on collected data to ensure that it aligns with best practices and industry knowledge.
- Calculate emissions and complete the 2020 GPC-compliant inventory.
  - Findings will be disaggregated by each community.
- Review all findings with the Town.
- Calculate key metrics for future comparison including, but not limited to, emissions by sector, emissions by source, emissions per capita, energy use intensity by building sector, residential electricity and natural gas use per capita.

#### Deliverables

- GHG inventory tool that is customized for county-wide (regional) emissions and disaggregated by each community.
- 2020 GPC-compliant GHG inventory with inputs and all accompanying data sources, including emails and original reports and spreadsheets.

### TASK 4: SUMMARY OF INVENTORY FINDINGS

- Summarize key emission findings from each inventory into a comprehensive and aesthetically engaging website that can be shared with the community. Lotus will create the website page on Mountain Village's existing website using Process Wire. Note: the webpage can easily be updated annually by either Lotus or Town staff.
  - We will include a comparison of energy usage and GHG emissions between 2020 and previous years. Differences between activity data and emission factors will be explored and discussed with Town staff.
  - A draft website outline of material and a draft webpage will be provided for feedback.
- Review findings with Town staff and the Green Team Committee.
- Prepare a final webpage on Process Wire.

#### Deliverables(s)

- A draft website outline and webpage.
- A final webpage in Process Wire.

### Project Management

Specific subtasks:

- Regular check-in emails.
- Monthly phone call with the Town.
- Monthly invoice reporting.

### Deliverable

- Monthly invoice reports.

## Project Schedule

TASK	January		February		March		April		May		June	
	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half
Task 1: Develop Community-Wide GHG Inventory												
Task 2: Develop Municipal GHG Inventory												
Task 3: Develop Regional GHG Inventory												
Task 4: Summary of Inventory Findings												
Project Management												

## Project Budget

TASK AND SUBTASK	Lotus Labor Hours				Total Lotus Labor	Total Labor Costs
	Emily	Hillary	Julia	Rachel		
	Regular	Regular	Regular	Regular		
Task 1: Develop Community-Wide GHG Inventory	6		20	34	60	\$ 5,230.00
Task 2: Develop Municipal GHG Inventory	6		20	34	60	\$ 5,230.00
Task 3: Develop Regional GHG Inventory	12		40	45	97	\$ 8,735.00
Task 4: Summary of Inventory Findings	12		20	30	62	\$ 5,650.00
Project Management	0		12	0	12	\$ 1,176.00
<b>TOTAL</b>	<b>36</b>	<b>0</b>	<b>112</b>	<b>143</b>	<b>291</b>	<b>\$26,021.00</b>