


Sector	CAP Strategies
	ES1. Increase adoption of renewable or other clean energy and fuel sources.
	ES2. Increase energy efficiency.
	ES3. Promote fuel switching (i.e., electrification).

Highlighted boxes show which CAP Strategies are implemented by CAP recommended Action.

Energy Working Group Recommended Action #1:

All CAP governments approve the IEC 2021 building code and adopt planning/zoning regulations that minimize outdoor energy use unless it is provided by a low/no carbon energy source or offset by 100% renewable energy.

Description:

Commercial and residential buildings are the largest contributors of emissions identified in the CAP. Outdoor energy use, including snow melt, decorative fire pits, and roof heating cables, were not identified as a subset of this overall energy use/ emission source. Since the development of the CAP, there has been a significant increase in the use of outdoor energy in new construction. If not addressed, carbon emitting outdoor energy use will greatly reduce the potential for meeting the CAP carbon reduction goals. This recommendation will close the possibility of outdoor energy use preventing CAP goal attainment.

Routt County is in the process of implementing the 2021 International Energy Code. This code does not address the use of outdoor energy use, but the code adoption process allows local governments to adopt language not in the code for regional needs. The town of Telluride uses a benchmark of 90,700 BTUs per square foot of snowmelt per year. This energy use, if provided by natural gas (methane), will generate approximately 11 pounds of CO2 per year (11.7 pounds of CO2/100,000 BTUs burned).



Lead Implementer(s):

Routt County (Building Department), CAP governments.

Partners:

Building/development community, other construction affiliated groups.

Implementation Needs & Next Steps:

- 1) Draft the code language.
- 2) Inform the builder/developer community.
- 3) Government adoption.
- 4) Builder/developer education.
- 5) New code implementation 1-24.

Timeframe to Begin Implementation:

Immediately (0) to one year (1).

Cost Estimate:

Zero government cost for language development and adoption (process is already budgeted for the overall code update/process).

Potential Funding Sources:

CAP governments.

Assessment:

Greenhouse Gas Potential: M

Notes/Assumptions: The future impact of outdoor energy use can not be measured, and while the site use of outdoor energy use has a high greenhouse gas footprint, the overall impact on the embedded energy use in the valley is moderate.

Co-benefits: M



<p>Notes/Assumptions: Co-benefits include improved air quality, reduced runoff and water loss to evaporation, and development of renewable energy resources to meet the load of future snowmelt.</p>
<p>Implementation Cost: M</p> <p>Notes/Assumptions: The cost of implementing the code is low, as this process is underway. New construction implementing snow melt may have to pay more for non-carbon fuel sources, but this cost has not been determined. In the long-run, fossil fuel powered snow melt may cost more than snow melt provided by renewable energy.</p>
<p>Political Barriers: M</p> <p>Notes/Assumptions: It is possible that the developer/building community may resist the implementation of an outdoor energy code restriction.</p>
<p>Ease of Implementation: H</p> <p>Notes/Assumptions: Adopting code is a straightforward process.</p>

CAP Strategy and Action:

ES1 A1 T1. Identify barriers (infrastructure, financing, code, policy, etc.) for deployment of renewable energy.

ES1 A5 T1. Prepare and adopt a community plan that shifts the community toward renewable energy and alternative fuels.


ES1 A5 T2. Review and modify policies and codes that will support goals (in) of the community plan.

ES2 A3. Adopt or upgrade codes and policies to ensure that new and renovated buildings are more energy efficient.

ES2 A3 T1. Review and modify codes to ensure that new and renovated buildings are more energy efficient.

ES2 A3 T2. Work with community partners and businesses to educate about these changes in codes.



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Energy Working Group Recommended Action #2:

CAP governments implement an energy and carbon reduction program targeting high-energy use existing buildings based on their variance from an established energy use profile.

Description:

The intent of this recommendation is to identify buildings that have the greatest potential for energy efficiency improvements. Combining utility bills with recorded property data (building size, age, and use) will allow clear targeting of high potential energy and resulting carbon reductions. This effort parallels the Colorado energy benchmarking effort for large buildings as established by state law. Emissions from the use of energy in commercial and residential buildings comprise the largest source of GHG emissions within Routt County (54 percent). This recommendation will play a major role in reducing the carbon emissions of this sector.

Lead Implementer(s):

TBD, possibilities include contractor(s) and/or government staff. CAP implementation team (Recommendation #4).





Partners:

YVEA, Atmos Energy, contractor community, local governments, CAP Board, Colorado Energy Office.

Implementation Needs & Next Steps:

- 1) Identify staff or third-party resources to coordinate and/or conduct this work.
- 2) Obtain funding for this project.
- 3) The CAP governments should develop a partnership with YVEA to create a Routt County "Energy Smart" Investment Fund of \$600,000/year by 2025 focused on increasing energy efficiency and beneficial electrification. (Approximately 1% of YVEA's current revenues).
- 4) Develop the desired BTU/square foot benchmarks.
- 5) Develop an inventory of commercial buildings.
- 6) Work with Atmos Energy and YVEA to obtain annual energy usage.
- 7) Develop implementation plan to address out of range buildings to bring them into the desired energy use range.
- 8) Develop a list of qualified contractors to support this work.
- 9) Support the effort with education and other outreach.

Timeframe to Begin Implementation:

Mid-term (2) to five (5) years.

Cost Estimate:

\$100,000 per year for program development and management (3-5 FTE) plus energy improvement costs TBD per year, though these costs will be offset by lifetime energy savings, grants and funding.

Potential Funding Sources:

CAP governments, Federal grants and tax credits, Colorado grants and tax credits, utility incentives and program support funds, utility franchise fees, participant investments.



Assessment:

<p>Greenhouse Gas Potential: H</p> <p>Notes/Assumptions: This recommendation has the highest carbon reduction potential of all recommendations made by the Energy Working Group.</p>
<p>Co-benefits: H</p> <p>Notes/Assumptions: Co-benefits include improved indoor air quality, increased occupant comfort, reduced energy bills, and economic multipliers from retrofit efforts.</p>
<p>Implementation Cost: M</p> <p>Notes/Assumptions: The cost to identify and rate the individual buildings is relatively low. The larger costs associated with this recommendation will be associated with making energy efficiency improvements. However, these costs can be offset with federal and state incentives and tax credits, utility incentive and future utility savings.</p>
<p>Political Barriers: M</p> <p>Notes/Assumptions: Initial funding for this effort will be required, with funds likely required by the CAP government partners. Building owners may resist benchmarking and the utilities may resist sharing building energy use data.</p>
<p>Ease of Implementation: M</p> <p>Notes/Assumptions: The development of the benchmark data is relatively straight forward but will require a dedicated staff or contractor resource. From there, developing resources to convince building owners to make energy efficiency improvements will also be required. Contractor availability, or the lack of, will also impact program success.</p>

CAP Strategy and Action:

ES1 A4. Create incentive programs to support the development of renewable energy and related infrastructure.

ES1 A4 T1. Identify partners at the state and local level that could help support rebate and incentive programs.





ES1 A4 T2. Work with partners to develop rebate and incentive program(s) with federal, state and local support.

ES1 A4 T3. Track and communicate rebate and incentive opportunities to the community.

ES2 A7. Create incentives for businesses, lessors, homeowners, and renters to improve the energy efficiency of their existing buildings and homes.

ES2 A7 T1. Identify partners at the state and local level that could help support rebate and incentive programs.

ES2 A7 T2. Work with partners to develop rebate and incentive program with federal, state and local support.

ES2 A7 T3. Track and communicate rebate and incentive opportunities to the community.

ES2 A1. Adopt and implements a strategic action plan to improve the energy efficiency of residential and commercial buildings and industrial processes in the community.

ES2 A1 T1. Prepare and adopt a strategic action plan to improve energy efficiency.

ES2 A1 T2. Review and modify policies and codes that will support (the) goals of the strategic action plan to improve energy efficiency.

ES2 A1 T3. Implement the strategic plan with large energy consumers as case studies to highlight and showcase beneficial outcomes of implementing the plan.

ES2 A2. Adopt an energy use information disclosure ordinance requiring energy users to disclose consumption levels (targeted to sector, building size, or other criteria).

ES2 A2 T1. Review and modify codes to require energy use information disclosure ordinance requiring energy users to disclose consumption levels (can be targeted to sector, building size, or other criteria).

ES2 A2 T2. Work with community partners and businesses to educate about these changes in codes.

ES2 A4. Create an education and outreach campaign or challenge to engage various target audiences in energy efficiency efforts.






ES2 A4 T1. Create an education and outreach campaign for residential and multi-unit housing to engage homeowners and renters in energy efficiency.

ES2 A4 T2. Create an education and outreach campaign for commercial property owners to improve energy efficiency.

ES2 A4 T3. Create an education and outreach campaign for industrial users and processes to improve energy efficiency.



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Energy Working Group Recommended Action #3:

CAP governments adopt policies requiring that all new municipal building construction and capital energy equipment replacements require best practice and life cycle cost decision making that includes a social cost of carbon.

Description:

The CAP governments have an important role in leading the community by example. All energy related (HVAC) capital expenditures need to be made based on a no-carbon basis. Best practice equipment selection using an avoided carbon value will lead to the best lifecycle investments.

Lead Implementer(s):

CAP governments, CAP Implementation Team.

Partners:

The design and engineering community, State agencies (DOLA, Energy Office, others).
 Professional design consultants.

Implementation Needs & Next Steps:

- 1) Write and adopt the appropriate purchasing policy for each government.



- 2) Adopt and implement the new policy.
- 3) Develop a funding source.
- 4) Track progress and projects annually.

Timeframe to Begin Implementation:

Immediately (0) to one (1) year.

Cost Estimate:

This can be covered by existing budgets and staff.

Potential Funding Sources:

Drafting and adopting this recommendation/policy will not require funding. Implementing the policy can be supported by State and Federal grants and tax credits and utility incentives. Core funding will come from established capital budgets.

Assessment:

While a relatively low impact item, the leadership of the participating CAP governments will be essential to moving the market to adopt energy efficiency and carbon reduction capital investments.

<p>Greenhouse Gas Potential: M</p> <p>Notes/Assumptions: Individual government projects will not have a large impact on carbon reduction, but overall leading the way for the community will have a much bigger impact.</p>
<p>Co-benefits: M</p> <p>Notes/Assumptions: Overall outdoor air quality will improve and over time the participating governments will see lower operating costs freeing funds for other municipal purposes.</p>
<p>Implementation Cost: M</p> <p>Notes/Assumptions: The analysis required will add to first costs and implementation costs may also be higher than carbon emitting options.</p>

Political Barriers: M

Notes/Assumptions: It will take leadership to implement this strategy with possible pushback from traditional vendors and project consultants.

Ease of Implementation: M

Notes/Assumptions: Change is always difficult, and staff and vendors will have to be led to the new way of analyzing capital expenditures through the CAP lens.

CAP Strategy and Action:

ES2 A5. Ensure that the County, the city, and the Towns across Routt County lead by example.

ES2 A5 T1. Conduct building energy audits and identify energy efficiency projects on County and municipality facilities.

ES2 A5 T2. Adopt policies requiring all new public buildings to meet LEED Certification or other nationally recognized green building certification programs.

ES2 A5 T3. Secure funding for projects.

ES2 A5 T4. Track and communicate energy efficiency projects and energy use and emissions reductions.

ES2 A5 T5. Update facility plans.

ES1 A2. Ensure that the County, the City, and the Towns across Routt County lead by example powering buildings with renewable energy.


ES1 A2 T1. Identify renewable energy projects on County and municipality facilities.

ES1 A2 T2. Secure funding for projects.

ES1 A2 T4. Communicate and educate the public about renewable energy opportunities in commercial buildings.

ES1 A2 T3. Track renewable energy production.



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Energy Working Group Recommended Action #4:

Engage with Atmos Energy to position Routt County as a targeted market area and implementation partner in their Clean Heat Plan scheduled for implementation in 2023.

Description:

Atmos Energy, the natural gas provider in the region, is in the process of preparing its first ever, Colorado mandated, Clean Energy Plan. Routt County can take advantage of this energy efficiency and electrification program and use it and the associated utility incentives to reduce natural gas consumption in existing buildings.

A 2021 Colorado law requires the gas utilities to reduce emissions from their distribution systems 4% below 2015 levels by 2025 and 22% by 2030. The regulated gas utilities will file “Clean Heat Plans” (CHPs) with the Public Utility Commission starting in 2023. A CHP may include a mix of supply-side resources which replace traditional gas and demand-side resources which reduce the amount of gas customers use. Together, these are called clean heat resources, and include:

- Energy efficiency programs, which could allow you to add more insulation at a reduced cost.
- Recovered methane, including the gas that is captured at landfills and water purification facilities.





- Green hydrogen, where water is converted to hydrogen through electrolysis using renewable electricity.
- Beneficial electrification, which could allow you to switch from a gas furnace to an electric heat pump for heating, or from a gas to an electric stove for cooking at a reduced cost.

Lead Implementer(s):

Atmos Energy, CAP governments with a dedicated resource, CAP Implementation Team.

Partners:

CAP governments, Atmos Energy, YVSC, YVEA.

Implementation Needs & Next Steps:

- 1) Develop a Routt County CAP clean heat advisory group.
- 2) Engage with Atmos Energy as they design their programs/incentives.
- 3) Engage in the Public Utility process if needed.
- 4) Support the implementation of the Atmos programs in Routt County.
- 5) CAP Implementation Team lead an outreach/education effort to transition away from natural gas toward electrification.

Timeframe to Begin Implementation:

Immediately (0) to one (1) year.

Cost Estimate:

Little to no government costs. This will depend on the level of engagement desired by the CAP governments.

Potential Funding Sources:

Atmos Energy.



Assessment:

<p>Greenhouse Gas Potential: M</p> <p>Notes/Assumptions: While this opportunity goes directly to the use of natural gas in existing buildings, the overall scope of the effort will be very moderate. This recommendation does offer solid support to the CAP emission reduction effort overall.</p>
<p>Co-benefits: M</p> <p>Notes/Assumptions: Co-benefits include improved indoor and outdoor air quality. Lower utility bills, improved comfort in conditioned space, and leveraging Atmos Energy’s statewide information and education efforts locally.</p>
<p>Implementation Cost: L</p> <p>Notes/Assumptions: Atmos Energy is required to do this work across their service territory. Supporting their efforts locally to meet their statewide goals will leverage out of area funds to Routt County.</p>
<p>Political Barriers: L</p> <p>Notes/Assumptions: As this work will need to be done by Colorado statute, we see no political barriers to implementing this recommendation.</p>
<p>Ease of Implementation: M</p> <p>Notes/Assumptions: While working with Atmos as they shape their programs and budgets will not be hard, it will require some unidentified dedicated resource(s). Providing access to Atmos rebates and incentives will also require resources that may not be present in the area at this time.</p>

CAP Strategy and Action:

ES2 A6. Expand energy audit and energy commissioning programs and access to these programs.

ES2 A6 T1. Work with local utilities, municipalities, and community partners to review available energy audit and commissioning programs; identify ways to expand these programs and fund them.






ES2 A7. Create incentives for businesses, lessors, homeowners, and renters to improve the energy efficiency of their existing buildings and homes.

ES2 A7 T1. Identify partners at the state and local level that could help support rebate and incentive programs.

ES2 A7 T2. Work with partners to develop rebate and incentive program(s) with federal, state and local support.

ES2 A7 T3. Track and communicate rebate and incentive opportunities to the community.



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Energy Working Group Recommended Action #5:

CAP governments and partners develop a local renewable energy plan that will replace 5% of CAP baseline electricity and 5% of baseline natural gas with local renewable energy.

Description:

The CAP recommends several renewable energy strategies but does not provide detailed goals or objectives. This recommendation establishes a baseline for renewable energy in the valley and if adopted, will also create a plan for meeting these goals.

Lead Implementer(s):

CAP governments, contractor(s), YVEA, Atmos Energy.

Partners:

YVSC, Colorado Energy Office.





Implementation Needs & Next Steps:

- 1) Fund the plan development.
- 2) Develop the plan and fund implementation.
- 3) Identify and remove barriers to local energy production (utility rules and constraints).
- 4) Track and report progress.

Timeframe to Begin Implementation:

Mid-term (2) to five (5) years, though plan development could start in year 1.

Cost Estimate:

The development of the plan is expected to be a moderate cost and could be completed with existing staff time. Otherwise, a modest consulting expense will be required.

Potential Funding Sources:

CAP governments, Colorado, Federal and other grants, utility grants and incentives.

Assessment:

Greenhouse Gas Potential: M
Notes/Assumptions: The emissions savings from this recommendation are moderate, but the recommendation supports a core initiative developed as part of the CAP process.
Co-benefits: M
Notes/Assumptions: This recommendation provides greater energy resiliency in the County and will have a moderate economic multiplier from energy savings.
Implementation Cost: M
Notes/Assumptions: Developing the plan will be a low-cost item relative to the overall CAP implementation cost. There will be costs associated with on-site energy generation, but these can be offset by State and Federal grants and tax incentives. Lifecycle energy savings will also reduce total costs of implementation.



Political Barriers: L

Notes/Assumptions: Developing the plan will require some budget funds as will funding an on-going initiative to meet the goals in the plan. YVEA's existing purchase power agreement limits self-generation to 3% of sales and the utility is at or near this limit, and will need to be changed.

Ease of Implementation: M

Notes/Assumptions: Developing the renewable energy plan will be easy, implementing the plan in the County will require a dedicated effort, budget and contractor availability.

CAP Strategy and Action:

ES1 A2. Ensure that the County, the City, and the Towns across Routt County lead by example powering buildings with renewable energy.

ES1 A3. Become a solar-ready, renewable gas-ready, and/or renewable-ready community as per existing programs such as SolSmart.

ES1 A3 T1. Review existing programs to become renewable energy ready.

ES1 A3 T2. Adopt renewable energy ready programs that are the best fit for the community.

ES1 A3 T3. Implement steps to become renewable energy ready as outlined in the adopted program.

ES1 A3 T4. Track and communicate efforts to become a renewable energy community.

ES1 A4. Create incentive programs to support the development of renewable energy and related infrastructure.

ES1 A6. Develop or support renewable energy projects that benefit the whole county (e.g., community solar, etc.).

ES1 A6 T1. Work with local utilities, community stakeholders and potential funding partners to develop new renewable energy projects; support the development of renewable energy projects with technical, financial and/or outreach support.

ES1 A6 T2. Support current renewable energy projects with technical, financial and/or outreach support.

ES1 A6 T3. Support utility provider transition to green energy.






ES1 A7. Create and implement a Renewable Energy Mitigation Program.

ES1 A7 T1. Create and adopt a renewable energy mitigation program at the County.

ES1 A7 T2. Implement a REMP program through the County Building Department and support energy efficiency and renewable energy programs with the proceeds.



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Energy Working Group Recommended Action #6:

CAP governments develop a strategic action plan that will meet the 2050 CAP energy efficiency and beneficial electrification (BE) goals for existing residential, commercial, and industrial buildings.

Description:

This is a broad and impactful portion of the CAP, but the details are not well developed. This recommendation will put a framework of timelines, budgets, objective goals and calculated impacts around the broad language in the CAP.

Lead Implementer(s):

Contractor TBD with guidance from CAP Board, CAP Implementation Team.

Partners:

YVEA, YVSC, government staff, Atmos Energy, CO Energy Office.

Implementation Needs & Next Steps:

- 1) Identify funding for contracting with an organization capable of performing this work.





- 2) CAP governments to approve the plan when prepared.
- 3) Technical support to implement the plan when adopted.
- 4) Ongoing support and funding.

Timeframe to Begin Implementation:

Immediately (0) to one (1) year.

Cost Estimate:

\$50,000 to \$100,000 for technical support. Project funding from CAP implementation funds. Could be included with CAP Implementation Team.

Potential Funding Sources:

CAP governments, State of Colorado Energy Office, Federal and other grants.

Assessment:

Greenhouse Gas Potential: H Notes/Assumptions: Existing residential and commercial buildings are the largest contributors to the Routt County carbon footprint at over 50%.
Co-benefits: M Notes/Assumptions: Efficiency and electrification can reduce lifecycle energy bills, promote indoor air quality and bring other benefits.
Implementation Cost: H Notes/Assumptions: The capital costs required will be high, however tax incentives may bring these down significantly for the participant. The plan will identify ROI potential by building and technology.
Political Barriers: L Notes/Assumptions: Developing the plan will have low political barriers as it is a low cost process. However resistance to the changes outlined in the plan may be high as



electrification has run into resistance in other communities.

Ease of Implementation: H

Notes/Assumptions: This implementation plan will build on the CAP process and many qualified organizations exist that can do this work.

CAP Strategy and Action:

ES1 A1. Reduce barriers to deployment of renewables (solar, wind, other) through review and modification of codes and policies, and tracking and implementation of state and federal support mechanisms.

ES2 A1 T1. Prepare and adopt a strategic action plan to improve energy efficiency.

ES2 A1 T2. Review and modify policies and codes that will support (the) goals of the strategic action plan to improve energy efficiency.

ES2 A1 T3. Implement the strategic plan with large energy consumers as case studies to highlight and showcase beneficial outcomes of implementing the plan.

ES3. Promote fuel switching (i.e., electrification).

ES3 A1. Develop and implement fuel switching programs.

ES3 A1 T1. Work with local utilities, municipalities, and community partners to develop fuel switching programs. Identify pilot programs and partnerships to increase fuel switching.

ES3 A2. Carry out education and outreach surrounding the benefits of and promoting electrification.

ES3 A2 T1. Develop an education and outreach strategy to highlight the sustainability, cost savings, and available programming to support fuel switching.

ES3 A2 T2. Provide technical assistance to property owners regarding beneficial electrification costs, processes, and outcomes.

ES3 A2 T3. Review and adopt codes to support beneficial electrification.

