

# CLIMATE



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## INTRODUCTION

Boulder County strives to conserve energy and use renewable energy sources by promoting programs that help the entire community work toward energy efficiency and renewable energy use.

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In 2005, Boulder County joined more than 200 cities and counties within the United States in making a commitment to address global climate change at the local level.

Non-renewable sources of energy impact land, water and air across geographical boundaries. Locally, Colorado generates most of its electricity from coal-fired power plants, which are one of the largest sources of air pollution in Colorado and in Boulder County. Burning coal is harmful to human and ecological health; it adds greenhouse gases to our atmosphere, contributing to climate change.

In 2005, Boulder County joined more than 200 cities and counties within the United States in making a commitment to address global climate change at the local level by passing a resolution to adopt a Sustainable Energy Plan (SEP) for Boulder County to achieve aggressive short- and long-term greenhouse gas emissions-reduction goals.

Boulder County began with a greenhouse gas (GHG) inventory to assess current and historical sources of emissions. Based on this data, analysts drafted a Greenhouse Gas Mitigation Report, which analyzed what efforts would be needed to meet the commissioners' goal of a 7% reduction below 1990 levels by 2012. The analysis informs us that achieving this goal will be a significant challenge.

The SEP, therefore, identified 20 key recommended actions that will lead to meaningful progress toward a sustainable energy future. These strategies were selected based on their emissions-reductions potential, their cost effectiveness, and an effort to ensure equitable contributions across the main GHG contributing sectors and address any social equity concerns. These key strategies, if implemented, will result in the county successfully reducing emissions 40% below 2005 levels by the year 2020. The Boulder County Commissioners—and the cities of Boulder, Lafayette, Longmont, Louisville, Lyons, Nederland and Superior—approved adoption of the plan in January 2008.

The county continues to work cooperatively with our local governmental entities to implement change within Boulder County. To date, the SEP has helped Boulder County and its partner communities achieve energy savings through lighting installations, improved heating systems, energy advising services, rebates and low-interest financing for energy efficiency upgrades, and green building codes.

## INTRO CONT.

In partnership with our local municipalities and the Department of Local Affairs, the following initiatives have been accomplished:

- The Boulder County Jail installed a biomass heating system in 2010 that uses wood chips to boil water for heating.
- The University of Colorado at Boulder and the City of Boulder installed solar-powered LED lights on a multi-use path. The solar-powered lights use approximately 3,000 fewer kilowatt hours annually than traditional path lights.
- The City of Lafayette installed solar lights in the municipal parking lot next to City Hall.
- The City of Louisville upgraded climate control at its recreation center, which has since resulted in a significant decrease in electricity consumption.
- The Town of Lyons installed energy-efficient lighting on Main Street.
- The Town of Superior replaced parking lot lights with LED fixtures.
- The county's "BuildSmart" regulations were extended to cover new commercial construction and remodeling.
- Through the county's Property Assessed Clean Energy (PACE) program, Boulder County funded 612 loans to complete approximately \$10 million in energy efficiency projects.
- Boulder County, in partnership with Elevations Credit Union, created the Energy Loans Program, a \$35.5 million revolving loan program for energy efficiency and renewable energy measures.
- Boulder County supported the solar gardens legislation at the state level, which will bring more renewable energy to Colorado.
- The county's Longhorn Facility was Boulder County's first net-zero energy building.
- The Board of County Commissioners directed that the new Longmont Human Services building be both LEED Platinum and net zero.

# CLIMATE

## INTRO CONT.

Beyond initiatives to mitigate climate change, Boulder County has become one of the first communities in the state to adopt a Climate Change Preparedness Plan to better adapt to the local impacts of climate change.

The plan complements existing approaches by identifying preparedness gaps where the county might be vulnerable to climate extremes. Four sectors—Emergency Preparedness,

Public Health, Water Resources, and Agricultural and Natural Resources—are strengthened by the plan's 31 policy recommendations. The Climate Change Preparedness Plan is designed to help protect public health and safety in the event of climate-related floods, fires, drought or extreme heat.



## CLIMATE GOAL

Achieve carbon neutrality and become more resilient to the potential effects of climate change

## INTERNAL

## TARGET 1

Achieve carbon neutrality for Boulder County operations

## SHORT-TERM STRATEGIES

*Green Building Related Strategies***STRATEGY 1**

Require that all existing Boulder County buildings be eligible for the ENERGY STAR label by 2014 and to achieve a minimum score of 85 (see "Energy & Buildings" for more detail)

**STRATEGY 2**

All new Boulder County buildings strive for a 48% improvement in building performance from baseline as described in ANSI (American National Standards Institute), ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers), and IESNA (Illuminating Engineering Society of North America) Standard 90 1-2007 (see "Energy & Buildings" section for more detail)

**STRATEGY 3**

All projects implemented in existing Boulder County buildings contribute to improving total building energy consumption by 44% as compared to baseline (see "Energy & Buildings" section for more detail)

**STRATEGY 4**

Install onsite solar photovoltaic (PV) systems to power county-owned buildings

**STRATEGY 5**

Expand purchase of renewable energy from local utilities to achieve carbon neutrality by 2020

**STRATEGY 6**

Create an internal carbon neutrality task force dedicated to making internal county operations carbon neutral by 2020

**STRATEGY 7**

Implement controls and policies to limit idling of municipal and county vehicles

**STRATEGY 8**

Establish projects and programs to reduce the absolute number of employee commute trips (see "Transportation" section for more details)

**STRATEGY 9**

Develop short-term and long-term conversion plans for the county vehicle fleet to implement new vehicle technologies as they become available for testing and use

**STRATEGY 10**

Promote the use of sustainable, locally sourced biofuels derived from local waste oil within the Boulder County vehicle fleet

## INTERNAL

## TARGET 1 CONT.

Achieve carbon neutrality for Boulder County operations

## EXTERNAL

## TARGET 1

Implement key recommendations from the county-wide Climate Change Preparedness Plan

## SHORT-TERM STRATEGIES CONT.

*Land Related Strategies*

## STRATEGY 11

Conduct a carbon inventory of county lands, particularly Parks and Open Space land management, including restoration to native plants, forest management and agricultural practices

## STRATEGY 12

Set goals for greenhouse gas (GHG) emissions-saving land management actions

## STRATEGY 13

Expand land management actions that sequester the most GHG emissions

## STRATEGY 14

Fund biochar research on county forested and agricultural land to determine the carbon sequestration benefits of this technology

## STRATEGY 15

Expand wind or solar energy for on-farm electrical needs on Parks and Open Space-owned agricultural land

*>For more information on other emissions reduction strategies, please see the "Air Quality," "Energy & Buildings" and "Transportation" sections of this plan.*

## SHORT-TERM STRATEGIES

## STRATEGY 1

Assign a point person to coordinate climate adaptation activities and determine how to measure progress on various elements of the county's climate adaptation efforts

## STRATEGY 2

Establish a permanent Climate Adaptation Planning Committee, which would serve as a multi-agency work group to coordinate resource management strategies across jurisdictional boundaries and provide a forum for community dialogue on water and climate

## STRATEGY 3

Lead and continue emergency response planning for Boulder County

## STRATEGY 4

Continue to enhance the flood detection network to anticipate, communicate and monitor flood areas within Boulder County

## STRATEGY 5

Conduct an extreme heat impacts and extreme heat program needs assessment



## EXTERNAL

## TARGET 1 CONT.

Implement key recommendations from the county-wide Climate Change Preparedness Plan

## SHORT-TERM STRATEGIES CONT.

## STRATEGY 6

Hire a full-time community education and outreach coordinator to promote the county wildfire protection plan

## STRATEGY 7

Limit and manage development in the forested areas of Boulder County to protect those lands and resources from fragmentation and other associated impacts

## EXTERNAL

## TARGET 1 CONT.

Implement key recommendations from the county Climate Change Preparedness Plan

## LONG-TERM STRATEGIES

## STRATEGY 8

Evaluate the impacts of events caused by climate change on transportation infrastructure and the need for transportation infrastructure to help prepare for, respond to and recover from such events

## STRATEGY 9

Expand the sectors and communities involved in regional climate resiliency planning

## STRATEGY 10

Determine how to measure progress on various elements of the community's climate change preparedness efforts; determine measures of success

## STRATEGY 11

Incorporate climate change preparedness strategies into the Boulder County comprehensive recovery plan and the comprehensive planning process

## STRATEGY 12

Incorporate climate change preparedness strategies into Boulder County and City of Boulder multi-hazards plan

## STRATEGY 13

Support future climate change preparedness policies and collaborative efforts at the local, regional and state levels

*> For more information on the Countywide Climate Change Preparedness Plan, please [BoulderCounty.org/find/library/gogreen/ccpp.pdf](https://bouldercounty.org/find/library/gogreen/ccpp.pdf)*

## EXTERNAL

## TARGET 2

Reduce countywide greenhouse gas emissions by 40% below 2005 levels by 2020

## SHORT-TERM STRATEGIES

## STRATEGY 1

Continue to offer EnergySmart, Boulder County's energy efficiency service, to residents and businesses

## STRATEGY 2

Offer low-interest financing through Elevations Credit Union's Energy Loans program for residents and businesses to complete energy efficiency upgrades and install renewable energy

## STRATEGY 3

Support increased access to renewable energy sources throughout Boulder County

## STRATEGY 4

Install light-emitting diode (LED) traffic signals

## STRATEGY 5

Educate Boulder County residents and businesses on reduction of peak electrical usage

## STRATEGY 6

Develop a multimodal transportation system (see "Transportation" section)

## STRATEGY 7

Support the increase of utility demand-side management programs and renewable power supply incentives, including an aggressive renewable portfolio standard

## STRATEGY 8

Encourage the adoption of residential and commercial energy efficiency codes throughout Boulder County's municipalities and towns

## STRATEGY 9:

Continue to strengthen the BuildSmart residential program to move toward net-zero energy use in new residential construction by 2022; enhance and improve commercial codes to achieve net zero energy by 2028

*> For more information on other emissions-reduction strategies, please see the "Air Quality," "Energy & Buildings," and "Transportation" sections of this plan.*

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Boulder County is committed to offering low-interest financing for residents and businesses to complete energy efficiency upgrades and install renewable energy systems.



## *Sustainability Challenge*

### **CARBON NEUTRALITY**

Achieving carbon neutrality in our internal operations is a key goal for Boulder County and an aggressive way to reduce our carbon emissions. Yet, what does it mean to be “carbon neutral?” Carbon neutrality goes beyond emission reduction, striving not to contribute any carbon into the atmosphere. Being carbon neutral refers to when the carbon dioxide produced by a person or process is exactly balanced by the amount of carbon dioxide offset by that person or process.

Most places aren’t able to completely eliminate carbon emissions. Typically, the final step to carbon neutrality is offsetting your remaining emissions. Offsetting means contributing to something that will reduce carbon in the atmosphere, such as planting trees.

True carbon neutrality requires reducing carbon emissions as much as possible in all efforts, including transportation, building-energy use, factories, farming/ranching, etc. This can include improving efficiency, choosing non-carbon producing options, or using renewable energy sources like solar photovoltaic (PV) systems or pure, locally sourced biofuels.

Boulder County will strive to reach carbon neutrality in its internal operations by increasing efficiency in county buildings, purchasing more renewables to operate our buildings with green power, and encouraging employees to use less energy and water throughout the work day.

## POLICY PRIORITIES

### *Support State and Federal Legislation, Regulation and Other Policy Means to Address Climate Change*

Boulder County has established aggressive goals and taken numerous steps to reduce the carbon footprint of county operations and move the county and the community toward carbon neutrality. It is imperative that the state and federal governments begin creating the national policy and regulatory framework necessary to strengthen the response nationwide and to achieve dramatic reductions in greenhouse gas emissions. Boulder County supports state and federal action through regulation of carbon dioxide and other emissions pollutants, a robust renewable portfolio and biofuel standards to power the electricity grid and vehicles, strong energy efficiency manufacturing standards and guidelines, and other such legislation and regulation.

See “Energy & Buildings” and “Transportation” sections for important policies related to energy and emissions impacting climate change.



## POLICY PRIORITIES CONT.

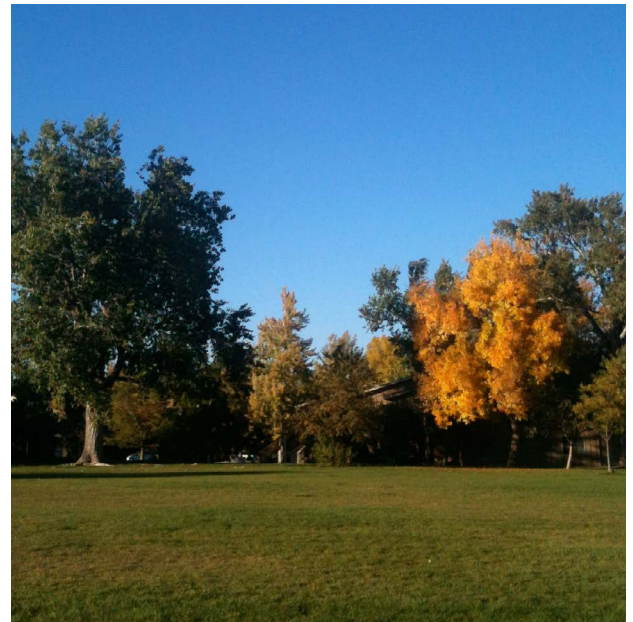
*Support Regulation of Carbon Dioxide*

Any law that places a price on carbon must achieve two basic and interrelated goals: Discouraging the use of oil, coal and natural gas, and encouraging the development of renewable sources of energy. In the United States, two main paths to this end have been proposed. The first is a cap-and-trade system, which would place gradually stricter restrictions on fossil fuel use; require power plants, industries and other major sources of greenhouse gases to purchase permits to emit carbon dioxide; and establish a market in those permits. The second is a tax on fossil fuels. Supporters of both methods say the economic difficulty created by higher energy prices could be offset by rebates to taxpayers.

Proponents of the cap-and-trade model argue that it has two main strengths. It sets a gradual declining ceiling on carbon emissions, and it uses the free market to wean the country off fossil fuels and onto renewable energy by creating a market that rewards companies for reducing CO<sub>2</sub>. Corporations that reduce emissions below their allotment can sell them on the open market.

Proponents of a carbon tax say this model has one overriding benefit: its simplicity. They argue that by imposing a predictable and steadily increasing tax on fossil fuels, a carbon tax would also drive development of alternative sources of energy. On November 7, 2006, City of Boulder voters approved Initiative 202, the Climate Action Plan

tax (CAP), marking the first time in the nation that a municipal government imposed a carbon tax to directly combat climate change. As most electricity in Boulder is generated from coal-fired power plants, the City of Boulder CAP tax is set to reduce Boulder's overall output of CO<sub>2</sub>. The tax generates about \$1 million for the city annually and funds energy efficiency services like EnergySmart and 10 for Change to help homeowners and businesses become more energy efficient. For more information see [EnergySmartYes.com](http://EnergySmartYes.com) and the Policy Priorities in the "Energy and Buildings" section.





## TAKE ACTION

Learn how you can reduce your climate impact. Each person is different, so use a Carbon Footprint Calculator to help you determine the best ways for you to reduce your impact. Please visit [Nature.org/GreenLiving/CarbonCalculator/index.htm](https://www.nature.org/en-us/about-us/what-we-do/our-impact/carbon-footprint-calculator/index.html)

Carbon footprint measures the amount of CO<sub>2</sub> produced annually from our daily activities (from burning fuels). The average North American's carbon footprint is 2,012 tons of CO<sub>2</sub> emissions a year. This means that every American would have to plant 29 trees a year to balance out their strain on the environment! Luckily there are almost endless and surprisingly simple ways to minimize our negative effects on the environment. To get started making a difference, tackle the list below or decide which options can easily be adjusted to fit into your lifestyle. Even small changes add up over time!

- Try to minimize waste—recycle, reuse and avoid packaging that can't be recycled or reused.
- Reduce your carbon-based travel. Research shows that 44% of our car trips are two miles or less. Take stock of where you're going and consider walking, biking or using public transportation. Combining trips and carpooling can also save over time.
- Start a compost bin/pile! It's easy and great for your garden (or someone else's if you don't have a one)!
- Work your green thumb: Plant a tree, grow your own vegetables or start your own garden.
- Eat less meat. The meat industry is the largest contributor to climate change, as livestock animals produce large amounts of methane. Methane is a greenhouse gas that packs 72 times the punch of CO<sub>2</sub> over a 20-year period. There is no need to cut out red meat entirely, but fewer steaks and burgers means far less methane.
- Make your home and household energy efficient. Just because your computer, air conditioner or television is off doesn't mean it's not using electricity. Unplug everything you're not using. Make sure your house is well insulated, and buy energy and water efficient appliances. An EnergySmart advisor can help you figure out ways to reduce your energy use, increase the comfort of your home and save you money. Find out more at [EnergySmartYes.com](https://www.energysmartyes.com).
- Go solar or purchase "green electricity." Green power is electricity that comes from renewable sources such as solar and wind, but is delivered to you in the same way as dirty power from fossil-fuel burning. Most energy suppliers now offer this service and will purchase energy from green sources that is equivalent to what you use.
- Buy local produce. "Food miles" is a way of expressing how far an item of food has travelled before it reaches your dinner table, and therefore how much CO<sub>2</sub> has been emitted during travel. A good rule of thumb is that if you buy something that has been produced locally, it will usually have lower CO<sub>2</sub> emissions attached to it.