

# ENERGY & BUILDINGS



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## INTRODUCTION

Boulder County strives to foster building practices that improve environmental, economic and social sustainability, while minimizing negative impacts through our Comprehensive Plan and Land Use Code, which complement our BuildSmart, EnergySmart and Housing Authority programs and services.

In 2008, the county adopted BuildSmart, a green building program for new residential construction that sets mandatory requirements to improve energy efficiency, conserve water and resources, and reduce waste generated by new construction and additions, helping local businesses strive for Leadership in Energy and Environmental Design (LEED) standards and sustainable development. The BuildSmart program encourages high performing, sustainable residential

development, and redevelopment in the unincorporated areas of Boulder County, by promoting development that will create energy efficient structures that reduce both the production of greenhouse gases from residential buildings and the amount of material sent to landfills. These measures help conserve water and other natural resources in the home-building process.

In addition, Longs Peak Energy Conservation, part of Boulder County's Housing and Human Services Department, offers weatherization services for low-income residents to make cost-effective, energy-efficient improvements and upgrades in their homes. Free weatherization improvements, such as energy audits, insulation, furnace replacements, air sealing and the installation of compact fluorescent light bulbs are available to qualifying homeowners and renters.



## ENERGY GOAL

Reduce energy consumption, increase the use of clean energy and transition away from fossil fuels

## BUILDINGS GOAL

Move toward net-zero energy use in all county buildings and develop building codes and policies that promote energy efficiency in new and existing buildings

### INTERNAL

#### TARGET 1

Reduce Boulder County's internal energy consumption and move toward net-zero energy use in Boulder County buildings

### SHORT-TERM STRATEGIES

#### STRATEGY 1

Require that all existing Boulder County buildings that are eligible for ENERGY STAR label achieve the ENERGY STAR label

- Energy modeling must show 48% energy cost savings as compared to baseline modeling using ASHRAE Standard 90.1 2007

#### STRATEGY 2

Require that all new Boulder County buildings achieve all available points within the Energy and Atmosphere's section of the U.S. Green Building Council's LEED for new construction:

- Must obtain 15% of the building's energy needs from renewable energy

> *For more information on other energy saving strategies, please see the "Climate" section of this plan.*

### INTERNAL

#### TARGET 2

Increase Boulder County's internal purchase of renewable energy and expand opportunities for renewable energy across Boulder County

### SHORT-TERM STRATEGIES

#### STRATEGY 1

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

> *For more information on Boulder County's internal energy operations, see [BoulderCounty.org/Sustainability](http://BoulderCounty.org/Sustainability)*

#### STRATEGY 2

Expand solar for all county buildings

## EXTERNAL

### TARGET 3

Increase energy efficiency in residential and commercial properties across Boulder County

## SHORT-TERM STRATEGIES

### STRATEGY 1

Continue to offer EnergySmart, Boulder County's energy efficiency service, to residents and businesses to improve the efficiency of existing buildings:

- Offer the Energy Advisor service to help achieve high conversion rates from energy assessment to energy upgrade
- Offer incentives and rebates for energy efficiency measures
- Continue energy efficiency and EnergySmart education and outreach efforts

### STRATEGY 2

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

### STRATEGY 3

Increase outreach and education efforts with the local energy efficiency contractors, designers, home and business owners:

- Continue offering workshops, trainings and educational resources
- In collaborations with local non-profits, continue to build relationships with energy efficiency contractors

### STRATEGY 4

Work with local utilities and the private sector to replicate the EnergySmart model locally and look for opportunities to replicate the model throughout the state of Colorado

### STRATEGY 5

Continue offering free and subsidized weatherization services to qualifying low-income residents

### STRATEGY 6

Improve land use and zoning controls in the Land Use Code to achieve optimal use of passive heating and cooling strategies through building location

## LONG-TERM STRATEGIES

### STRATEGY 7

Continue to strengthen the BuildSmart residential program to move toward net-zero energy use in new residential

construction by 2022 and enhance and improve commercial codes to achieve net zero energy by 2028



Energy reduction and using renewable energy are top priorities in county-owned buildings. The county started performing energy audits, lighting efficiency projects, building controls upgrades, and heating/ventilation/air conditioning improvements in the 1980s, and these efforts continue today.

In 1998, the county began benchmarking energy use with the Environmental Protection Agency's ENERGY STAR program. Several county buildings have achieved ENERGY STAR labels, marking them as top performers in energy performance. In addition, two county buildings have achieved high ratings from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) ratings:

- The Addiction Recovery Center received LEED Gold for New Construction.
- The 100-year-old Courthouse Annex achieved LEED Gold for Existing Buildings Operations and Maintenance.
- The Longmont Human Services building will be net-zero energy and built to LEED platinum standards.

In 2005, the county began purchasing a significant amount of its electrical power from wind generation. From 2008, the county started installing solar photovoltaic (PV) systems and, as of June 2012, has installed over 900kW of solar panels on county buildings. At times, some of these buildings are totally powered by the sun. The Boulder County Jail and the Open Space and Transportation Complex both have biomass boilers. The boilers provide all the heating required at these buildings in the winter and operate on wood chips harvested during forest fire mitigation work on Boulder County-owned open space property. Josephine Commons, a new affordable housing development for seniors and low-income families in Lafayette features both geothermal and solar.

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Since 1990, the county has added 40% more building square footage but has kept greenhouse gas emissions constant at 1990 levels, thanks largely to these sustainable energy efforts.



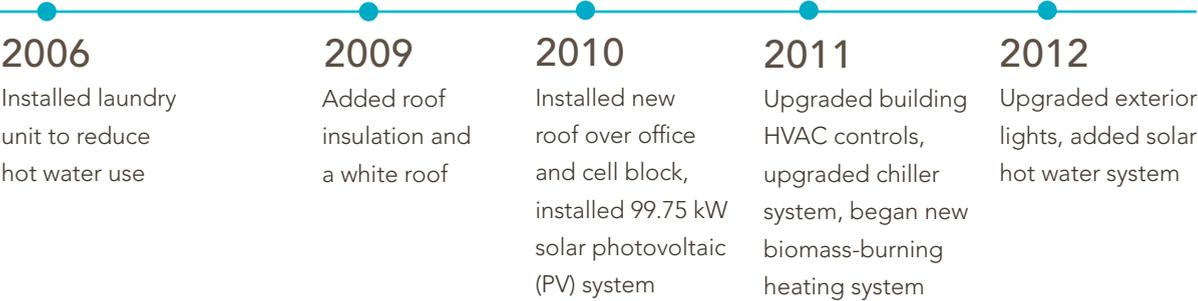
The Boulder County Jail opened in 1988 with a bed design capacity of 287. The jail is currently 103,400 square feet, with 536 beds.

In 2009, Boulder County engaged an engineering firm (M.E. Group) to complete a baseline energy model assessment of the county jail. Through the energy modeling process, it was determined that the

majority of the energy usage for the jail was attributed to space heating.

With Boulder County’s integration of alternative energy, upgrades to existing systems and other changes, the jail is on track to reduce energy use by 59%. See below for a timeline of upgrades.

To optimize heating and energy performance, Boulder County Jail made the following energy upgrades:



*Sustainability Success!*

**EnergySmart**

In July 2011, Jason Gray, a resident in the Arborwood HOA in north Boulder, called EnergySmart to get help upgrading his attic insulation. Attics at Arborwood are commonly owned by the HOA, which meant that the upgrade would need to be approved by the HOA board. The Arborwood board thought that more than just Gray's space should be improved.

More than seven months and many conversations later, Arborwood completed a major improvement to their attic insulation, upgrading all 88 top-floor units from about R-21 to either R-38 or R-49. An "R-Value" is a measure of insulation's ability to resist heat traveling through it. The higher the R-Value, the better the thermal performance of the insulation.

The process involved more than 100 individuals coming together to save energy, reduce heating bills, improve their comfort, and add value to their community.

**88**  
Total units with added attic insulation and air sealing

**\$77,364**  
Total project cost

**\$30,000**  
Total rebates received

**32%**  
Expected reduction in total energy use as a result of the added insulation and air sealing



## Sustainability Success!



Working with Boulder County Public Health, Energy Advisor Mary Wiener upgraded nearly one million square feet of commercial properties throughout Boulder County.

The W.W. Reynolds Companies, Inc. was one of more than 2,000 Boulder County businesses that took advantage of Boulder County's EnergySmart program to improve its bottom line through energy efficiency upgrades.

The W.W. Reynolds Companies completed upgrades for more than 30 of its commercially leased properties, including 60 lighting

projects and 18 rooftop heating and cooling equipment replacements. These lighting and equipment retrofits are estimated to save W.W. Reynolds' tenants more than 2 million kilowatt-hours per year and prevent 1,137 tons of annual greenhouse gas emissions. Several tenants have reported that they are saving an estimated 20-25% on their utility bills as a result.

**Both W.W. Reynolds and their tenants found great value:**

"Without the help of the EnergySmart Advisor, it would have been impossible to complete these projects. The Advisor helped me work out the numbers, review contractor bids and complete the rebate applications."

— **Aaron Schlager, the W.W. Reynolds Companies**

"The EnergySmart service has saved us quite a bit of money through reduced energy use. The contractor did an excellent and fast job."

— **Gary Neptune, Neptune Mountaineering**

## POLICY PRIORITIES

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*Support Permanent Funding for the Energy Efficiency and Conservation Block Grant Program*

Authorized by the Energy Independence and Security Act of 2007 and funded through the American Recovery and Reinvestment Act of 2009, the Energy Efficiency and Conservation Block Grant (EECBG) program provides direct allocations to local governments to fund cost-effective energy efficiency programs. Boulder County, as a past recipient of these funds, supports continued and permanent appropriations for the EECBG program.

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*Support Legislative and Other Efforts to Allow Continued Implementation Of Property Assessed Clean Energy (PACE) Finance Programs*

Boulder County's ClimateSmart Loan Program (CSLP) was one of the most advanced Property Assessed Clean Energy (PACE) programs in the nation. In Fall 2010, as a result of directives issued by the Federal Housing Finance Agency (FHFA), the county was forced to suspend the residential component of the CSLP. Two years later, the FHFA remains firmly entrenched in its opposition to local government implementation of PACE. With this circumstance in mind, Boulder County supports Congressional action to remove the federal preemption of PACE so that it can flourish as a key tool in our nation's transition to a clean energy future.

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*Support Creation of Green Building Codes and Related Policies to Improve the Energy Performance of Colorado's Building Stock*

Residential and commercial buildings account for nearly 45% of the electricity and natural gas consumed in Colorado. Green building codes play a critical role in ensuring that energy efficiency technologies are supported in the marketplace, and provide multiple benefits to homeowners, renters, building owners and tenants, and society at large through reduced energy demand and energy cost savings. Boulder County supports legislative and policy efforts that will lead to improvements in the energy performance of Colorado's building stock, including a uniform statewide "green building" code, demand-side incentives for property owners including those in jurisdictions with green building codes, and elimination of federal preemption of local development of green building codes.

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*Support Building Energy Use Disclosure Requirements, Carbon Labeling and Other Efforts to Raise Awareness with Respect to Energy Consumption of Commercial Buildings*

As identified in the Boulder County Sustainable Energy Plan, building energy use disclosure requirements are seen

## POLICY PRIORITIES CONT.

as an effective strategy for raising awareness in building owners, managers and tenants about the impacts and costs of a building's energy consumption.

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*Support Enabling Legislation to Enact Residential and Commercial Energy Conservation Regulations*

As identified in the Boulder County Sustainable Energy Plan, Residential Energy Conservation Ordinances (RECOs) and Commercial Energy Conservation Ordinances (CECOs) are effective policy tools for upgrading the energy efficiency and performance of the existing residential and commercial building stock. Boulder County supports enabling legislation to provide Colorado counties and statutory cities and towns this same capability.

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*Support State Legislation to Advance Community Choice Aggregation in Colorado*

Community Choice Aggregation, or CCA, enables cities and counties—or groups of cities and counties—to supply electric power to the customers within their borders through aggregate purchase of electricity rather than direct ownership of an electric distribution system. Boulder County supports legislation and/or other policy initiatives

that will provide the opportunity for CCA to be considered as an important tool for achieving a clean energy future for Colorado.

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*Support Legislation And Other Policy Approaches To Advance An Aggressive Clean Energy Agenda For Colorado*

Colorado has made significant efforts in recent years to create a policy and administrative framework to support clean energy. Voter and State Legislature-initiated legislation have resulted in the creation of one of the strongest Renewable Energy Standards (RES) in the nation, electricity and natural gas savings goals for the state's largest utilities, and a host of financial and other incentives to support energy efficiency and renewable energy. Boulder County supports continued pursuit of an aggressive clean energy agenda for Colorado, which would reduce greenhouse gas emissions and strengthen local economies through such strategies as increasing the RES, expanding state support of and engagement with weatherization efforts, and developing an energy efficiency performance standard for all utilities, amongst others.

## TAKE ACTION

EnergySmart is a one-stop resource for residents and businesses in all Boulder County communities. We'll help you find the best tools, programs, incentives and more. Just give a call to get started and find the best ways you can save energy today:

*For Homes:* **303.544.1000**

*For Businesses:* **303.441.1300**

Or visit **EnergySmartYes.com**