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**energy  
& buildings**



**INTRODUCTION**

Boulder County strives to foster building practices that improve occupant health, comfort, and safety, as well as environmental, economic, and social sustainability, through the Comprehensive Plan and Land-Use Codes, complemented by the BuildSmart, EnergySmart, Partners for a Clean Environment (PACE), and Housing & Human Services programs.

The Boulder County Comprehensive Plan sets a policy vision for a compact development pattern that locates development in urban areas and preserves distinct buffers between communities. The goals of this policy vision are to avoid sprawl and conserve natural resources. In 2008, the county adopted BuildSmart, a green building program for residential construction and major remodels that sets mandatory requirements to improve energy efficiency, conserve water and resources, and reduce landfill waste generated by new construction projects.

In 2011, EnergySmart and PACE, our residential and commercial energy programs respectively, began helping building occupants take advantage of energy efficiency and renewable energy opportunities. Each program offers free, one-on-one energy advising, financial incentives, and unique programming to meet the needs of each participant. Both programs are currently centering their work on climate justice to reach historically marginalized populations that face the most climate risk.



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**energy and buildings goal**  
Reduce energy consumption, promote energy efficiency, increase the use of clean energy, and transition away from fossil fuels.

**COUNTY OPERATION STRATEGIES**

**Reduce Boulder County's internal energy consumption**

- All newly constructed, county-owned buildings shall be constructed to a minimum Gold level certification as defined by the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) for New Construction, or the equivalent, while striving to attain all the available points under the Energy and Atmosphere category. Construction is underway for a Southeast Community Hub, expected to achieve LEED certification status and modeled after the St. Vrain Community Hub platinum LEED level building in Longmont, which opened in 2016. This \$22.4 million investment brings service closer to community members and will be the fourth county-owned facility deemed energy efficient by the USGBC.
- Annually track building energy intensity, perform energy assessments and retro commissioning, upgrade mechanical equipment and lighting, and reduce plug loads in county-owned buildings. Completed American Society of Heating, Refrigerating and Air-Conditioning Engineers Phase II Audits on all county buildings outlining potential energy efficiency measures that may aid county climate savings and impacts.

**Increase Boulder County's adoption of renewable energy**

- Meet all of Boulder County's electrical needs with 100% renewable energy by 2025.
- Expand capacity of on-site solar electric and solar thermal generation.

**COMMUNITY STRATEGIES**

**Increase energy efficiency, renewable energy, and electrification in residential and commercial properties across Boulder County**

- Continue to offer EnergySmart and Partners for a Clean Environment services to Boulder County residents and businesses, and to explore new opportunities to address greenhouse gas (GHG) emission reductions through these programs in a way that centers on historically marginalized populations.
- Support fuel-switching pilots that helps residents and businesses adopt renewable heating and cooling technologies as replacements for fossil fuel gas appliances and inefficient electric appliances.
- Increase outreach and education efforts to local solar installers, energy efficiency contractors, residents, and business owners.
- Work toward equity in our services for underrepresented community members and business groups.
- Provide low-interest financing through the statewide Residential Energy Upgrade loan of the Colorado Commercial Property Assessed Clean Energy Program, and provide other financing instruments to enable residents and businesses to complete energy efficiency upgrades and install renewable energy.
- Support additional community solar garden capacity to increase the availability of renewable electricity to the residents and businesses of Boulder County.
- Continue to offer free and subsidized weatherization services and solar incentives to qualifying low- and moderate-income residents.
- Utilize the Energy Impact Offset Fund to offset the high electricity usage of the cannabis cultivation industry.
- Continue to explore opportunities to address energy sustainability through the Land-Use Code and the Comprehensive Plan, particularly as it relates to siting solar and other renewable energy facilities.
- Continue to strengthen BuildSmart to move toward net zero energy use in new residential and commercial construction.
- Use the experience and insights we have gained locally to work with the International Code Council to strengthen energy codes for commercial and residential structures.
- Promote and support the adoption of energy storage technologies that increase system resilience and to moderate electrical grid peak demand.





**CLEAN CLOTHES, CLEAN ENERGY**

With the help of Boulder County’s Partners for a Clean Environment (PACE) service, John’s Cleaners paired energy efficiency with renewable energy for a clean energy makeover.

Working with a PACE advisor, this family-owned cleaner in Lafayette installed new LED lighting, which improved light quality and lowered the amount of energy used. They then installed a ground-mounted, 46 kilowatt solar array.

John’s Cleaners used Commercial Property Assessed Clean Energy Program financing for the upgrades and thus had no up-front, out-of-pocket costs. They repay the loan along with their property taxes, and the loan stays with the property if they sell it.

**SOLAR PHOTOVOLTAIC (PV) PAYBACK & SAVINGS**

Costs Covered by Incentives	<b>46%</b>
Project Cost	<b>\$128,686</b>
Federal Tax Incentive	<b>\$38,606</b>
PACE Rebates	<b>\$20,000</b>
Cost after Rebates	<b>\$70,080</b>
Payback	<b>4.3 years</b>
Energy Saving Cost/Year	<b>\$19,066</b>
Lbs of CO <sub>2</sub> Savings/Year	<b>98,454</b>

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**Generating our own power instead of relying on fossil fuels helps save money but also makes our business more competitive in the environmentally conscious Boulder community.**

—Wendy Ellwood, Co-owner







**CLEAN ENERGY FOR ALL**

Throughout Boulder County, homeowners are investing in clean and energy efficient technologies such as solar PV and high-performance electric heating systems. However, for some residents, the up-front costs of these measures can be a barrier. Ensuring access to money-saving, climate-friendly upgrades for all is a priority.

Beginning in 2013, Boulder County's then-weatherization agency, Longs Peak Energy Conservation, teamed with the county's EnergySmart service to address a gap in energy-related county services for low- to moderate-income families. This collaboration, called EnergySmart IQ (for Income Qualified) resulted in 63 completed EnergySmart IQ projects and 26 projects through the federal Weatherization Assistance Program.

Fast forward to 2021, when the work of providing energy efficiency improvements to low- to moderate-income residents transitioned into a collaborative effort between EnergySmart and Energy Outreach Colorado (EOC). Through EOC's Colorado's Affordable Residential Energy program, more than 40 families have received whole-home energy efficiency and weatherization improvements at no cost.

In 2021, another partnership launched among Boulder County, EOC, Xcel Energy, and the City of Boulder to subscribe more than 450 Boulder County low- to moderate-income Xcel customers to the low-income-dedicated community solar garden on the former Valmont coal fired power plant site. Along with providing these residents with access to renewable energy at charge, these subscriptions reduce resident electric bills by 30 to 40% on average each month.

**Committed to ensuring access to money-saving, climate-friendly upgrades for all.**



POLICY PRIORITIES

The following are environmental sustainability policy priorities within Boulder County’s legislative agenda:

POLICY	WHAT YOU NEED TO KNOW
<p><b>Energy and Climate</b></p> <ul style="list-style-type: none"> <li>Reduce statewide carbon emissions consistent with or greater than the state of Colorado’s 2019 codified goals.</li> <li>Adopt a comprehensive, market-based approach to reduce Colorado’s GHG emissions while protecting the most historically and currently marginalized communities.</li> <li>Expand the consideration of the environmental and health costs associated with the use of fossil</li> </ul>	<p>fuels in making and implementing climate-based policy.</p> <ul style="list-style-type: none"> <li>Support sufficient funding for staffing and other necessary resources at the Colorado Department of Public Health and Environment and the Colorado Oil and Gas Conservation Commission to effectively develop and implement the oil and gas regulations authorized by Senate Bill 19-181 and the climate change goals established in House Bill 19-1261.</li> </ul>
<p><b>Energy Efficiency</b></p> <ul style="list-style-type: none"> <li>Expand demand-side savings from efficiency and conservation for all energy types.</li> <li>Support ongoing and sustainable funding for weatherization and</li> </ul>	<p>renewable energy assistance to low-income households, so that all Coloradans have access to comfortable and affordable homes.</p>

POLICY

WHAT YOU NEED TO KNOW

**Energy Generation**

- Accelerate the retirement of existing fossil fuel generation facilities and their replacement with cost-effective and reliable clean energy supplies through means that protect both utilities and consumers.
- Modernize energy infrastructure to enhance community-based resilience and integrate distributed energy resources.

**Local Climate Strategies**

- Remove barriers and promote opportunities that allow counties and municipalities to maximize the deployment of local clean energy and climate-related strategies, including resilience-oriented strategies, while promoting affordable, accessible, and equitable delivery of reliable clean energy.
- Support policies that promote energy-efficient buildings.
- Provide for equitable strategies to enable and accelerate beneficial electrification.







## Leadership in Energy

Energy reduction and the use of renewable energy are top priorities in Boulder County-owned buildings. The county started performing energy audits, lighting efficiency projects, building controls upgrades, and heating, ventilation, and 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, designating them as top energy performers. In addition, three county buildings have achieved high USGBC LEED ratings—two Gold and one Platinum. Additionally, the new Southeast Community Hub, located in Lafayette, is expected to achieve LEED Gold certification when construction is completed in 2023.

Some of the exciting measures the county has taken include the use of biomass boilers

at the Boulder County Jail and the Open Space and Transportation Complex. The boilers provide all the heating required for these buildings in the winter, using wood chips harvested from county-owned open space properties during forest fire mitigation work. Another energy efficient building is Josephine Commons, a new affordable housing development for older adults and low-income families in Lafayette. This housing development features both geothermal and solar energy sources.

The county is also offsetting energy use at our facilities with solar and wind energy. In 2005, the county began purchasing a significant amount of its electrical power from wind generation. In 2008, the county began installing solar PV systems and subscribing to solar gardens. As of 2020, all electricity supplied to facilities operated by Boulder County Public Works is from 100% renewable sources.





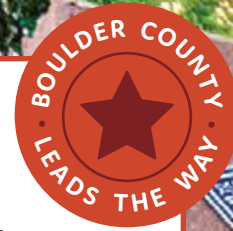


## One of the Greenest Jails in the Country

In 2009, Boulder County engaged the engineering firm M. E. Group to complete a baseline energy model assessment of the county jail. Through that process, it was determined that the majority of the jail's energy usage was attributed to space heating.

With the county's integration of alternative energy, upgrades to existing systems, and other changes, the jail is on track to reduce energy use. To optimize heating and energy performance, Boulder County Jail made the following energy upgrades:

- **2006**  
Installed laundry unit to reduce hot water use.
- **2009**  
Added roof insulation and white, heat-reflecting roof.
- **2010**  
Installed new roof over office and cell block and installed 99.75 kW solar PV system.
- **2011**  
Upgraded building HVAC controls, the chiller system, and began new biomass-burning heating system.
- **2012**  
Upgraded exterior lights to LEDs and added solar hot water system.
- **2016**  
Replaced two air handlers with new units containing heat recovery wheels to improve efficiency and provide ventilation for the increased number of beds.
- **2020**  
Installed new air handler containing heat recovery wheel.
- **2022**  
Completed remodel of the old administrative offices, including replacement of existing air handler with new energy-efficient unit containing heat recovery wheel.





TAKE ACTION

## Call to Action

To reach these goals, we need collective community action to reduce countywide reliance on fossil fuels, not waste energy, and shift to a clean-energy economy. Here are great ways you can make a difference:

- ❑ Make your home tight, efficient, quiet, and comfortable. Participate in the EnergySmart<sup>29</sup> program to optimize and receive incentives for your energy efficiency and electrification projects.
- ❑ Wondering how your business can contribute to climate change mitigation? Join Partners for a Clean Environment’s Climate Action Challenge to receive free support to measure your GHG pollution, set a reduction target, and make a plan.
- ❑ Share all the changes you are making in your life, home, and workplace with your friends, family, and colleagues.
- ❑ Make your home<sup>29</sup> or business<sup>30</sup> fossil fuel-free by adding solar and switching to electric heat pump heating, heat pump hot water heating, and electric resistance or induction cooking. You’ll also improve the indoor air quality of your home by cutting out the potential for gas leaks and pollutants from gas combustion.



RESOURCES

## More Information

**29 Resources for Homes**

[EnergySmartYES.com](https://energysmartyes.com)

**30 Resources for Businesses**

[Pacepartners.com](https://pacepartners.com)

