

Rebuilding for an Energy Efficient Future

The Benefits of Smart Rebuilding After Colorado's Flooding



Quinn Chasan, CoPIRG Foundation
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Rebuilding Opportunity

The historic flooding across Colorado destroyed an estimated 1,882 homes and damaged another 26,000 more, leaving behind whole communities that need to be rebuilt.ⁱ As homeowners and small business owners begin to rebuild, they have a unique opportunity to reduce their future energy bills by investing in smart, energy-saving upgrades to the building's external "envelope" and internal systems and appliances.

Energy Efficient Envelopes

The single biggest determinant for a homeowner or business owner's future energy bills is the external shell or "envelope" of the building, since it accounts for 52% of energy use in homes and 34% of energy use in commercial buildings on average.ⁱⁱ The Department of Energy estimates rebuilding with energy efficient best practices on the building envelope will make a building 20% to 25% more energy efficient than a similar house or commercial building without the upgrades.^{iii,iv}

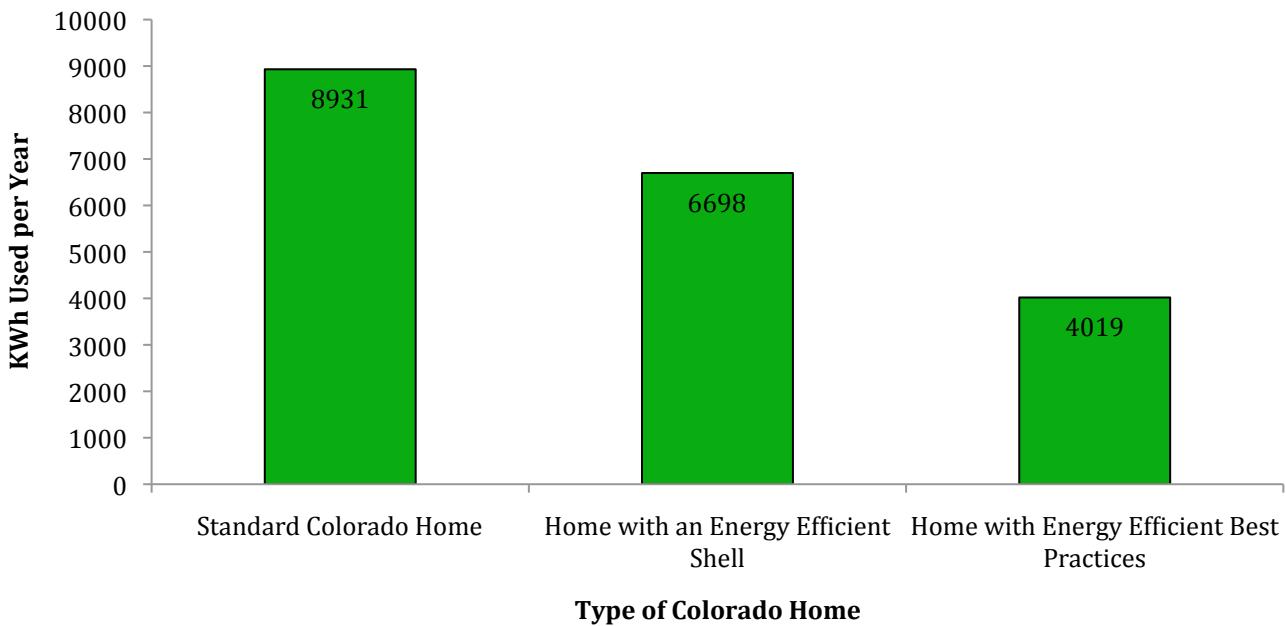
Big Savings for Homes and Businesses

In addition to efficiency upgrades for the envelope of the building, there are numerous energy saving improvements for inside a home or business such as energy efficient appliances, lighting, and air conditioning that can save an additional 20-30%. Combined with the external upgrades mentioned above, owners can have a cumulative savings of as much as 55%.^v For a standard Colorado home whose energy bills are about \$1,034 per year, which equals \$569 in savings every year.^{vi}

Big Savings for the Community

With so many homes and businesses being rebuilt in a single community, aggressively investing in energy efficiency upgrades now will not only save those individuals but also help reduce future costs for the whole community. For example, if the 1,882 homes that were destroyed in the recent flooding were rebuilt with a standard efficient building shell and if the 26,000 affected homes were to utilize energy upgrades in the interior of their damaged homes, the cumulative total energy reduction would be approximately 73,863 MWh. This amount of energy is the equivalent of a week and a half's worth of energy produced by a typical coal-fired power plant.^{vii} A reduction in the energy footprint of this size shows how community-wide reductions can reduce energy use by a lot, putting off the need for building expensive new power generation and further savings consumers money.

Home Energy Savings Opportunities



Source: U.S. Department of Energy, Energy Efficiency & Renewable Energy Division^V

Additional Benefits

Investing in energy efficiency also creates jobs and keeps money in the local economy. Energy efficiency creates three times as many jobs compared to other energy and approximately 97% of the time those jobs are local.^{viii,ix}

Local Utilities Help Coloradans Save

Even though rebuilding efficiently is smart for individuals and the community, financial resources are likely stretched by the cost of rebuilding from the flooding. The good news is local utilities can, and in many cases do, play a critical role in helping people afford energy-efficient strategies as they rebuild by offering robust demand-side management programs. Utility demand-side management (DSM) programs help residents and small business owners afford energy efficient upgrades by offering rebates and discounts to them on various energy saving technologies and devices.

Consumer Guide for Rebuilding Efficiently

While there are many ways to reduce energy costs, here is a quick list of some of the best practices that flood victims in the affected areas should utilize:

Insulation: Insulation is one of the least expensive and most beneficial upgrades that Coloradans can do to cut down on energy costs. Homes and businesses with poor insulation and air leakage can lose up to 25% of their heating or cooling energy. One utility, Xcel Energy, provides a rebate

equal to 20% or \$300 of the total cost of insulation installation for home owners insulating their attics, walls, and other areas that need air sealing.^x

Roofing: Reflective roofing is a simple way to cut down on energy costs. By using materials that literally reflect the sun's rays away from a home, older Colorado homes could reduce peak cooling demands by 10-15% and save roughly \$158 and small businesses roughly \$290 every year.^{xi,xii} The City of Fort Collins Utility offers a program to help with these exterior costs. For businesses, they provide a comprehensive savings program for the entire ‘building envelope’ - windows, insulation, and roofing upgrades.^{xiii}

Windows: Upgrades to single and double-paned windows are another effective and easy way to save. Recent upgrades in technology allow efficient windows to retain heat in the winter and cool air in the summer. These upgraded windows have special coating that also acts like sunscreen for household belongings, reducing fading by up to 75%.^{xiv} Here in Colorado, ENERGY STAR estimates that replacing home windows can save up to \$266 for single-paned windows and \$115 for double-paned windows every year.^{xv} The City of Fort Collins Utility provides rebates for these window replacements, up to \$2 per square foot up to \$600 total.^{xvi}

Light Bulbs: Lighting makes up 15% of household energy use so upgrading the lights can make a big impact on overall costs and energy use.^{xvii} Compact fluorescent light bulbs (CFLs) and light-emitting diode (LED) lights fit virtually any type of lighting fixtures and can cut down on lighting energy use by 75-80%. A single CFL bulb can save someone \$62 over its lifetime. Xcel Energy also offers discounted CFL and LED bulbs for as little as \$1 a piece, often less than half of their typical market price.^{xviii}

Energy Audit: The best way to figure out the most effective energy savings strategies for a home or business is through an energy audit. Simply put, this is when a trained auditor comes and meticulously analyzes a home or business, identifying the best improvements based on needs and budget. Energy audits have identified and helped consumers implement programs that save them as much as 30% on their energy bills per year. The City of Fort Collins Utility provides a comprehensive audit for just \$60.^{xix} Check out the Department of Energy’s simple [infographic](#) to see exactly how these audits work.^{xx}

The utility rebates and incentive programs mentioned above are just some of the rebates offered and are not an exhaustive list. For example, the City of Fort Collins Utility also provides rebates for appliances; crediting a homeowner with \$50 for ENERGY STAR qualified dishwashers and \$100 for similarly qualified clothing washers.^{xxi}

Utility DSM Programs Vary

If Coloradans who are rebuilding from the devastating floods live in a utility territory with strong energy savings programs, the savings can quickly add up to several thousand dollars. Therefore, flood victims should contact their local utility to identify the programs that are offered. If a local utility does not offer a wide range of energy efficiency programs, urge them to offer more. Many of the utilities in Colorado are co-operatives or municipal utilities, and, as non-profit entities, exist solely to serve the energy consumer.

New Programs for Flood Victims

Some utilities are, in fact, working with the Colorado Energy Office to scale up their energy efficiency programs to help with the rebuilding efforts. For example, the Longmont municipal utility, Longmont Power and Communications, has waived administrative requirements to utilize efficiency programs, increased their rebates for insulation and gas furnaces, and created new rebates for ENERGY STAR hot water heaters to help ease the reconstruction burden on their local residents. For those utilities that do not offer as wide a range of options, now more than ever, they need to step up and deliver energy saving programs to help communities recover from the disaster.

Colorado Utility Contact Information

Utility Name	Location	Zip Code	Contact Number	Type of Utility
Delta-Montrose Electric Association	Montrose	81402	970-249-4572	Cooperative
K.C. Electric Association	Hugo	80821	719-743-2431	Cooperative
San Luis Valley Rural Electric Co Op	Monte Vista	81144	719-852-3538	Cooperative
Empire Electric Association	Cortez	81321	970-565-4444	Cooperative
La Plata Electric Association	Durango	81302	970-247-5786	Cooperative
San Miguel Power Association	Nucla	81424	970-864-7311	Cooperative
Grand Valley Rural Power Lines	Grand Junction	81502	970-242-0040	Cooperative
Morgan County Rural Electric Association	Fort Morgan	80701	970-867-5688	Cooperative
Sangre De Cristo Electric Association	Buena Vista	81211	719-395-2412	Cooperative
Gunnison County Electric Association	Gunnison	81230	970-641-3520	Cooperative
Mountain Parks Electric	Granby	80446	970-887-3378	Cooperative
Southeast Colorado Power Association	La Junta	81050	719-384-2551	Cooperative
Highline Electric Association	Holyoke	80734	970-854-2236	Cooperative
Mountain View Electric Association	Limon	80828	719-775-2861	Cooperative
United Power	Brighton	80601	303-659-0551	Cooperative
Holy Cross Energy	Glenwood Springs	81602	970-945-5491	Cooperative
Poudre Valley Rural Electric Association	Fort Collins	80527	970-226-1234	Cooperative
White River Electric Association	Meeker	81641	970-878-5041	Cooperative
Intermountain Rural Electric Association	Sedalia	80135	303-688-3100	Cooperative
San Isabel Electric Association	Pueblo	81002	719-547-2160	Cooperative
Y-W Electric Association	Akron	80720	970-345-2291	Cooperative
Yampa Valley Electric Association	Steamboat Springs	80477	970-879-1160	Cooperative
Delta Municipal Light & Power	Delta	81416	970-874-7566	Municipal
Glenwood Springs Electric System	Glenwood Springs	81601	970-384-6400	Municipal
Oak Springs Municipal	Oak Creek	80467	970-736-2422	Municipal
Aspen Municipal Electric	Aspen	81611	970-920-5148	Municipal
Gunnison Light & Water	Gunnison	81230	970-641-8320	Municipal
Center Municipal Gas Light & Power	Center	81125	719-754-3497	Municipal
Trinidad Municipal Power & Light	Trinidad	81082	719-846-9843	Municipal
Fountain Department of Utilities	Fountain	80817	719-322-2092	Municipal

Colorado Springs Utilities	Colorado Springs	80903	719-448-4800	Municipal
Frederick Municipal Light System	Frederick	80530	720-382-5500	Municipal
Longmont Power & Communication	Longmont	80501	303-651-8386	Municipal
Lyons Municipal Light & Power	Lyons	80540	303-823-6622	Municipal
Estes Park Light & Power	Estes Park	80517	970-586-5331	Municipal
Loveland Water & Power	Loveland	80537	970-962-3000	Municipal
Fort Collins Utilities	Fort Collins	80521	970-221-6700	Municipal
Julesburg Municipal Light & Power	Julesburg	80737	970-474-3344	Municipal
Fleming Electric Light Department	Fleming	80728	970-265-269?	Municipal
Haxtun Municipal Light & Power	Haxtun	80731	970-774-5875	Municipal
Holyoke Municipal Light & Power	Holyoke	80734	970-854-2266	Municipal
Fort Morgan Electric Light Department	Fort Morgan	80701	970-867-5688	Municipal
Yuma Municipal Light & Power	Yuma	80759	970-848-3878	Municipal
Wray Light & Power	Wray	80758	970-332-4431	Municipal
Burlington Municipal Light & Power	Burlington	80807	719-346-8652	Municipal
La Junta Municipal	La Junta	81050	719-384-8454	Municipal
Las Animas Municipal Light & Power	Las Animas	81054	719-456-1621	Municipal
Lamar Light & Power	Lamar	81052	719-336-7456	Municipal
Granada Utilities	Granada	81041	719-734-5411	Municipal
Holly Light & Power	Holly	81047	719-537-6622	Municipal
Springfield Municipal	Springfield	81073	719-523-6231	Municipal
Xcel Energy	Denver	80202	303-571-7511	Investor Owned
Black Hills Energy	Golden	80401	303-568-3260	Investor Owned

Source: Colorado Energy Office – Energy Utilities Map

ⁱ Exec. Order No. D 2013-030. October 8th, 2013. <http://1.usa.gov/18pjLX>.

ⁱⁱ U.S. Department of Energy (DOE). *2009 Buildings Energy Data Book*. Prepared for the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy by D&R International, Ltd. Silver Spring, Maryland. October 2009. <http://1.usa.gov/yn1Ew>

ⁱⁱⁱ U.S. Department of Energy (DOE), ENERGY STAR Program. “Residential New Construction:

An Overview of Energy Use and Energy Efficiency Opportunities.”
<http://1.usa.gov/17DUGMC>.

^{iv} *Id.* p. 19

^v U.S. Department of Energy (DOE), ENERGY STAR program. “Features & Benefits of Energy STAR Certified New Homes.” <http://1.usa.gov/byRlaf>. Power-displacement calculations - Electric Power production from coal-fired power plants: 33,955 thousand megawatts per year. In: U.S. Energy Information Administration. “Net Generation from Coal: by State, by Sector, 2011 and 2010.” <http://1.usa.gov/16KugU8>. Divided by 14, number of coal-fired power plants in Colorado, In: U.S. Energy Information Administration. “Colorado: State Profile and Energy Estimates.” <http://1.usa.gov/1gHQzgS>. Divided by household energy savings to get estimate, see household calculation data in endnote [vi] below.

^{vi} Price calculated by multiplying average KWh price, average KWh consumption per person per home, I.E. 11.58 cents * 8931 KWh = \$1,034.3 per year, or \$86 a month. KWh price in:

U.S. Energy Information Administration, Independent Statistics & Analysis Division. “Electric Power Monthly – with Data for April 2013.” June 2013. P. 116. Table 5.6.A. April used as the month with average temperature in Colorado. <http://1.usa.gov/17s4Ar5>. KWh per capita use in: U.S. Department of Energy, Energy Efficiency & Renewable Energy Division. “Clean Energy in My State – Residential Electric Consumption Per Capita.” March 27, 2013. <http://1.usa.gov/12bv79u>. Average household population data in: Index Mundi. “Colorado Average Household Size, 2005-2009 by County.” They pulled from U.S. Census Data.

<http://bit.ly/182kuwG>.

^{vii} U.S. Department of Energy. “Colorado Residential Energy Consumption.” Energy Efficiency and Renewable Energy Division. <http://1.usa.gov/12bv79u>. Calculation based on typical home energy use & average reduction savings from: *Energy Efficiency Trends in Residential and Commercial Buildings*. U.S. Department of Energy, Energy Efficiency & Renewable Energy division. October 2008. P. 12 <http://1.usa.gov/9BwuI>

^{viii} *Energy Efficiency Services Sector: Workforce Size and Expectations for Growth*. Lawrence Berkeley National Laboratory. Goldman, Charles, et al. Environmental Energy Technologies Division. September 2010. <http://1.usa.gov/1bp9mhk>

^{ix} “The Economic Benefits of Investing in Clean Energy.” Department of Economics and Political Economy Research Institute. University of Massachusetts, Amherst. June, 2009. P. 36. <http://bit.ly/cYdpW>

^x “Insulation Rebates.” Xcel Energy. <http://bit.ly/1bN0Ace>

^{xi} U.S. Department of Energy. Estimates from Oak Ridge National Laboratory. Roof Savings Calculator (RSC) Beta Formula. <http://rsc.ornl.gov/>

^{xii} “Roof Products for Consumers.” Energy Star. <http://1.usa.gov/cenpw3>

^{xiii} “Fort Collins Conserves with Efficiency Programs and Community Leadership.” March 2012. <http://bit.ly/1bmlqjk>

^{xiv} *Residential Windows*. Carmody, Selkowitz, Arasteh, and Heschong. 2007.

^{xv} “Benefits of ENERGY STAR Qualified Windows, Doors, & Skylights.” ENERGY STAR. 2009. <http://1.usa.gov/deKMwl>

^{xvi} *Id.*

^{xvii} U.S. Department of Energy. “Lighting Choices to Save you Money.”

<http://energy.gov/energysaver/articles/lighting-choices-save-you-money>

^{xviii} “Home Lighting – Energy-Efficient Bulbs” Xcel Energy. <http://bit.ly/12YWzOi>

^{xix} “Home Efficiency Program.” Fort Collins Utility. <http://bit.ly/1bdRsKZ>

^{xx} “Energy Saver 101 Infographic: Home Energy Audits.” U.S. Department of Energy. August 15th, 2013. <http://1.usa.gov/1cy8Q0E>

^{xxi} “Clothes Washer & Dishwasher Rebates” Fort Collins Utility. <http://bit.ly/19GhlAU>